SOUTHERN POWER AND INDUSTRY

AUGUST, 1956

FIFTY CENTS PER COPY

12 ACRES . . . 2250 TONS

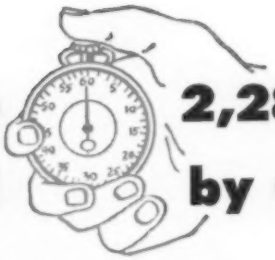
Valves & Fittings Plant is Fully Air Conditioned

IN MISSOURI CITY, TEXAS, W-K-M Manufacturing Company's 500,000 sq ft metalworking plant is an outstanding example of factory air conditioning purely for employee comfort. The plant's 2250 ton air cooling system converts to heating by the circulation of heated water through the piping system. See page 42 for details.

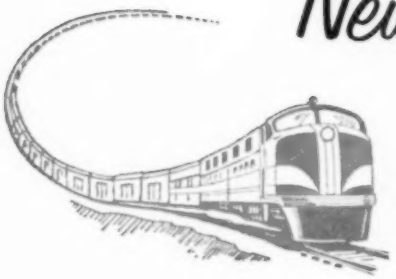
SOUTHERN POWER & INDUSTRY is published monthly by W. R. C. Smith Publishing Co., Executive and Editorial Offices: 806 Peachtree St., N.E., Atlanta 8, Ga. Entered as second-class matter at the Post Office, Char'otte, N. C. Subscription Rates: United States and Possessions, $1.50 per year or three years for $3.00; Foreign Countries, $10.00 per year.

Volume 74 Number 8

Every minute 2,281,623 cu. ft. of air handled by CLARAGE in



New York's new Coliseum



...enough to fill a train of boxcars 5½ miles long

One of the biggest air handling assignments on record — and Clarage all the way!

For the Coliseum's colossal requirements, 75 Clarage Fans, 24 Unicoil Sprayed Coil Units, and 14 Multitherm Conditioning Units were selected. This choice, we feel, is an outstanding tribute to the worth of our equipment. Obviously, in a structure of this type, there could be no compromise with quality. Only the finest could qualify.

Make sure *your* investment in air handling and conditioning is a profitable one. Investigate the equipment we have perfected for every type of application.

CLARAGE FAN CO., Kalamazoo, Michigan

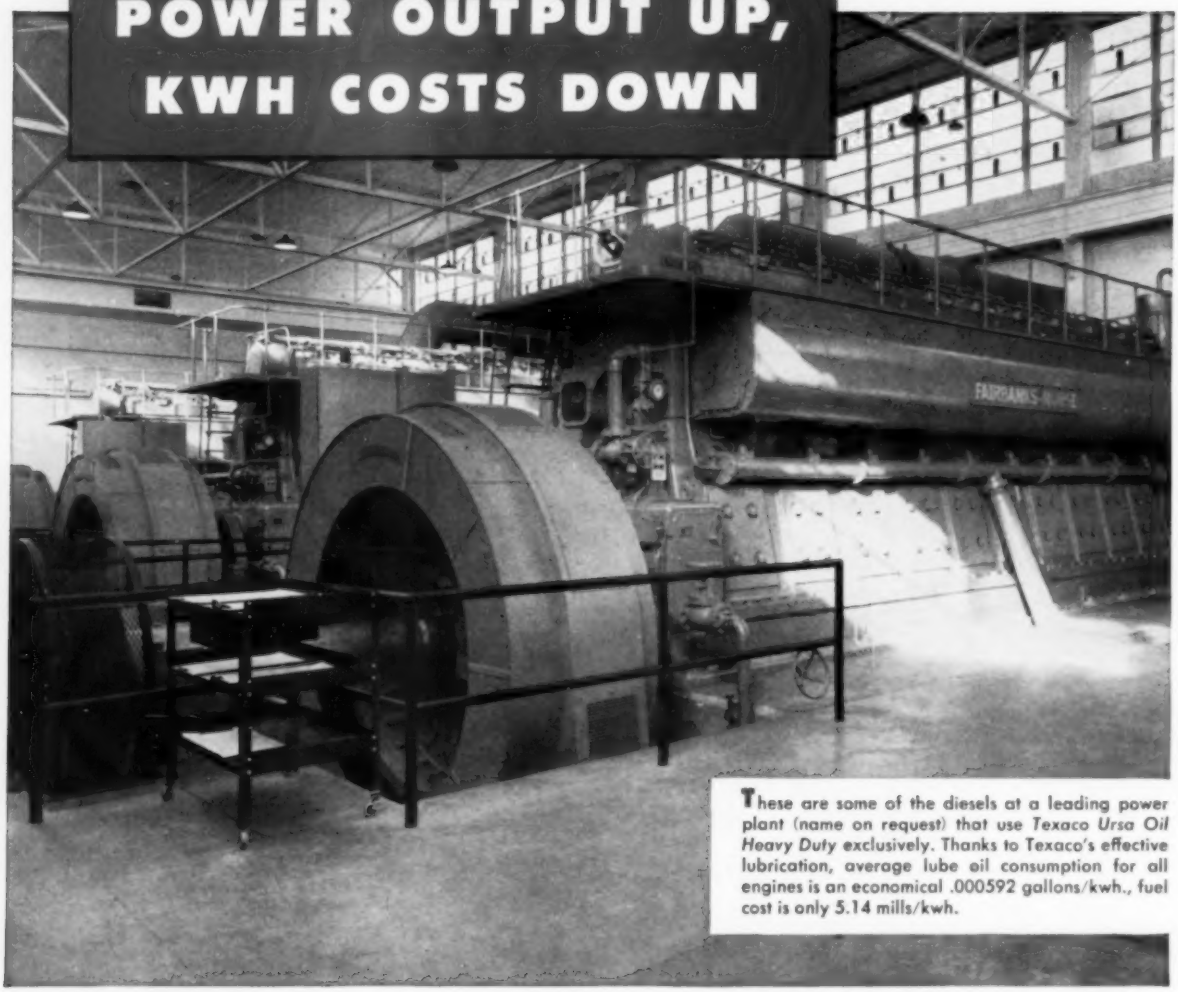
OWNER — Triborough Bridge & Tunnel Authority
ARCHITECT — Loon and Lionel Levy
MECHANICAL ENGINEER — Guy B. Panero
STRUCTURAL ENGINEER — Dr. Jacob Feld
GENERAL CONTRACTOR — Walsh-Fuller-Slattery
HEATING, VENTILATING AND AIR CONDITIONING CONTRACTOR — Almiroll & Co., Inc.

CLARAGE

...dependable equipment for making air your servant

SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES • IN CANADA: Canada Fans, Ltd., 4285 Richelieu St., Montreal

HOW YOU CAN KEEP POWER OUTPUT UP, KWH COSTS DOWN



These are some of the diesels at a leading power plant (name on request) that use *Texaco Ursa Oil Heavy Duty* exclusively. Thanks to Texaco's effective lubrication, average lube oil consumption for all engines is an economical .000592 gallons/kwh., fuel cost is only 5.14 mills/kwh.

LUBRICATE your engines with one of the world-famous *Texaco Ursa Oils*. It's your best assurance of full-power, dependable performance at low maintenance costs.

There is a complete line of *Texaco Ursa Oils*—especially refined to make diesel, gas and dual-fuel engines deliver *more power* with *less fuel* over *longer periods* between overhauls.

Operators everywhere have found that *Texaco Ursa Oils* prevent harmful deposits and stuck rings, assure proper compression and combustion. These outstanding benefits are so consistently delivered that—

For over 20 years, more stationary diesel h.p. in the U. S. has been lubricated with Texaco than with any other brand.

Whatever the type of your engines, whatever the operating conditions—there is a *Texaco Ursa Oil* to assure highest efficiency at lowest possible cost. Let a Texaco Lubrication Engineer help you make the best selection.

Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO URSA OILS

FOR ALL DIESEL, GAS AND DUAL-FUEL ENGINES

SOUTHERN POWER AND INDUSTRY

Vol. 74
No. 8

AUGUST, 1956

•

Annual Subscription—$1.50
Foreign—$10.00

•

Published monthly by
W. R. C. SMITH PUBLISHING CO.
Atlanta, Ga., and Charlotte, N. C.

Publishers also of *Textile Industries, Electrical South, Southern Hardware, Southern Automotive Journal, and Southern Building Supplies.*

W. J. Rooke, Chairman of the Board; R. P. Smith, President; T. W. McAllister, Vice-President; E. W. O'Brien, Vice-President; A. E. C. Smith, Vice-President; J. C. Cook, Vice-President.

FEATURE ARTICLES IN THIS ISSUE

DESIGN, OPERATION AND MAINTENANCE

HELPING THE MAN-IN-THE-PLANT

REGULAR FEATURES—DEPARTMENTS

Contents indexed regularly by Engineering Index, Inc.

Editorial and Executive Offices: SOUTHERN POWER & INDUSTRY, 806 PEACHTREE ST., N. E. ATLANTA 8, GEORGIA

Facts and Trends

FOR SOUTHERN INDUSTRIAL AND POWER EXECUTIVES

August 1, 1956

◆ PLASTIC PUMPS are meeting corrosive conditions in the Courtaulds (Alabama) rayon plant. Corrosive problem resulted from handling solutions of H_2SO_4, ranging from .5% to 15% at temperatures up to 195 F.

Over the past two years, 5 types of special alloy pumps have been replaced with Mission Mfg. Company's Haveg (plastic) pumps with very good results. The fluid end of the pumps are solid plastic, not simply lined or cemented. In some cases, the Haveg pumps have been operating satisfactorily for two years where the previous special alloy pump life was only about six months.

Courtaulds' LeMoyne, Alabama, plant now has approximately 60 of the Haveg 41 pumps installed, pumping from 90 to 250 gpm of corrosive liquors. The pumps have aided greatly in solving their overall corrosive pumping problems.

◆ PITY THE POOR FISH—A Florida company, operating about 500 air conditioning units, encountered considerable difficulty with the growth of algae in cooling towers and evaporative condensers. Good results were secured by turning these units into gold fish ponds—seems that the gold fish thrive on the algae and require little attention. If you want to try this out, make sure your scale treatment compound does not contain strong chemicals, which will have a toxic effect on the fish. Non-toxic, vegetable composition compounds will do the trick, without injury to the gold fish.

◆ 2250 TON AIR CONDITIONING SYSTEM provides "built-in good weather" in the new multi-million dollar, 500,000 sq ft W-K-M Manufacturing Company's valve and fittings plant at Missouri City, Texas. It is an outstanding example of factory air conditioning purely for employee comfort.

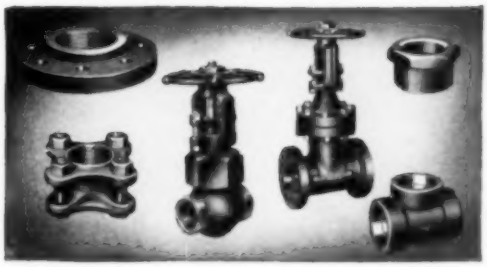
The plant's 2250 ton system converts to wintertime heating by the circulation of heated water through the piping system. All major air conditioning equipment was supplied by The Trane Company. Three CenTraVacs, hermitically sealed compressors operating on the principal of centrifugal force, have 750 tons of cooling capacity each. Semi-technical highlight report on the design and operating features is published in this issue.

◆ WEARING AN ALUMINUM COATED SUIT, an engineer recently walked into a 1,200 F oven carrying an armload of wood which burst into flames. He then took a wicker armchair and sat in it while it burned. He then carried in a half-inch-thick steak that cooked to medium-rare in about 1 1/2 minutes—while he didn't. The demonstrator reported he had tested the suit previously "about 200 times" in industrial repair work in ceramic kilns at temperatures in the 1,200 degree range.

It was the first public demonstration of the new "3M" (Minnesota Mining and Manufacturing Co.) brand aluminized fabric used in the suit. The aluminum-coated fabric reflects radiant heat instead of insulating against it.

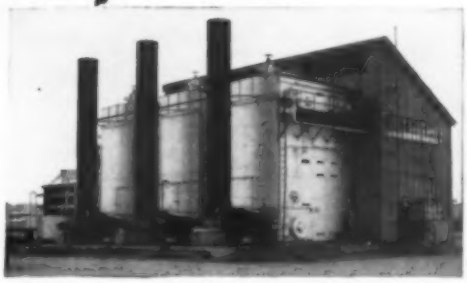
The suit in the demonstration (produced by Fyrepel Products, Inc., Newark, Ohio) has the aluminum coating on a fibre glass

Designed for today's *Tough* service demands



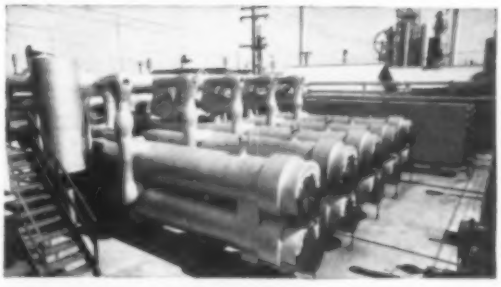
DROP FORGED VALVES AND FITTINGS FOR TOUGHNESS AND TROUBLE-FREE SERVICE

Drop forged from carbon and alloy steels, Vogt valves, fittings and flanges will safely handle liquids and gases at high pressures and high temperatures in power plants, chemical plants, petroleum refineries, etc. The complete line includes flanged, screwed and socket weld end globe, gate and check valves—ells, tees, and crosses—couplings—bushings—plugs—unions—flanges and flange unions—and welding heads.



MODERN STEAM GENERATORS

Vogt steam generators are designed to give maximum rating in a minimum of space, with high efficiency and low maintenance expense. Bent tube types and straight tube, forged steel sectional header types to burn solid, liquid or gaseous fuels meet every power, process or heating requirement.



PROCESS EQUIPMENT FOR EVERY SERVICE

Vogt constructs process equipment in wide variety to all Codes. Stills and towers, oil chillers, crystallizers, heat exchangers, molding machines, etc., serve in the manufacture of oils, greases, 100 octane gasoline, synthetic rubber, chemicals and related products around the world.

SPECIAL MATERIALS COMBAT CORROSION AND PRODUCT CONTAMINATION

Our modern shops produce a wide variety of equipment from special metals and alloys to fight corrosion and product discoloration or contamination. Fabrication procedures insure that corrosion resistant properties of welds will match that of the materials used to construct the equipment.

MORE REFRIGERATION TONNAGE AT LESS COST

More than 70 years of engineering and manufacturing experience is incorporated in Vogt refrigerating and ice making equipment. Absorption Systems, Compression Systems, and Tube-Ice Machines in a wide range of capacities serve industrial and processing plants, and institutions, here and abroad.

Vogt

PRODUCTS

FOR REFINERIES, CHEMICAL PLANTS POWER PLANTS AND PROCESS INDUSTRIES

Write Dept. 24-GS for catalogs

HENRY VOGT MACHINE CO.
LOUISVILLE 10, KY.

SALES OFFICES: New York, Philadelphia, Cleveland, Chicago, St. Louis, Charleston, W. Va., Cincinnati, Dallas, San Francisco

Facts and trends *(continued from page 4)*

material which is backed up with fibre glass quilting. Twelve manufacturers of industrial clothing are now offering such aluminized clothing nationally.

During four years of field evaluations, the aluminized fabric has saved lives, prevented property damage and saved hundreds of thousands of dollars in production time by permitting quicker entry into hot areas.

◆ LUBRICATOR SIGHT GLASSES—Experiencing difficulty with visibility and excessive maintenance? Manzel's new vacuum pumping unit is claimed to offer reduced maintenance costs. Sight feed liquid is not present and therefore, no clouding can occur from oil additives.

Light colored oils are readily visible; lubricants other than petroleum products can be used; and inventory reduction is possible as the pumping unit can be used for pressures up to 6000 psig.

Regardless of how small the setting is for the oil delivery, the plunger stroke remains the same—to change the volume of oil delivered only the position of the plunger in relation to inlet port is changed. See "Equipment . . Supplies . . Methods" in this issue for details.

◆ COMPUTER APPLICATIONS—Lockheed Aircraft Corporation's Georgia Division is believed to have the South's largest and most advanced concentration of industrial electronic computers. Company has one IBM computer for use in engineering computations and another IBM unit for tackling processing jobs such as pay rolls, parts listing, accounts payable, inventory control and production control.

Difficult problems are solved with incredible speed. For instance: A machine could figure out your income tax in less than a second; it can add 40,000 ten digit numbers in one second; it can multiply ten digit numbers at the rate of 2,000 a second; it will compute the Lockheed payroll for 18,000 employees, making all necessary deductions individually, all overtime, the rates and salaries in 45 minutes.

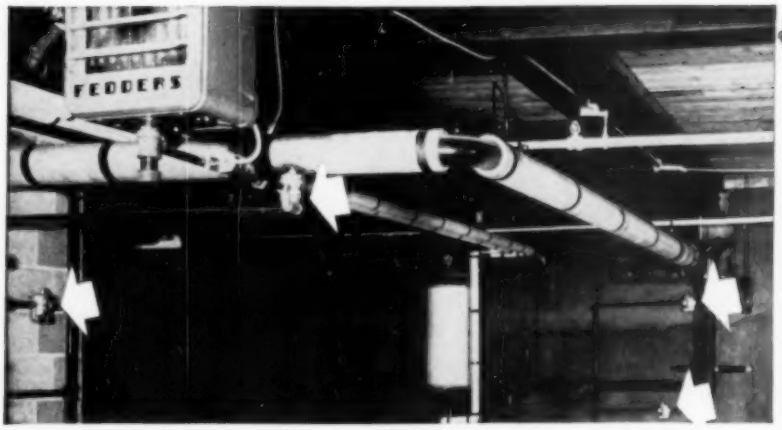
◆ MOTORS GET WASHED . . AND TAKE IT—Citrus concentrating plants present many conflicting engineering problems. Processing must be rapid and uninterrupted and electrical equipment must withstand continual washing down to achieve the high level of sanitation demanded of all food industries. Yet costly special motor equipment or extensive maintenance must be avoided.

Citrus, Inc., at Haines, Florida, has to continually wash down all machinery and most of the equipment is motor driven. Open motors get wet and must be baked out and reinsulated at the end of each season. Totally enclosed motors tend to collect water from condensation and must be drained periodically. At the end of the season they too must be baked out.

Engineers, headed by Plant Superintendent Richard Holzcker, solved the problem by using Fairbanks-Morse splash-proof frames and F-M 17 insulation for all motors up through 7-1/2 hp. Space heaters are used on larger motors, 10 hp and up. During the first year's operation, there was only one motor failure and that from overloading a 1-1/2 hp motor.

Write the editors for additional information on any of the above items. SOUTHERN POWER & INDUSTRY. 806 Peachtree St., N.E. Atlanta 8, Ga.

How One Company Has Saved $80,000 to Date by Buying 600 Steam Traps



Armstrong built-in strainer traps save maintenance as well as fuel at L. G. Balfour Co., Attleboro, Mass.

Joseph Brooks, Production Manager at Balfour, insists on "Armstrongs — *no substitute.*"

Armstrong Traps on Low Pressure, Vacuum Return Heating System Cut Fuel Costs $8,000 Per Year, Have Served 10 Years Without Repairs

YOU'D HAVE TO SELL a lot of fraternity pins to come out with $80,000 profit. But, that's the dollar-saving a couple of alert plant men have made by installing Armstrong steam traps at L. G. Balfour Company, fraternity jewelry makers of Attleboro, Mass. And, they've made their own jobs easier by doing it.

Just 10 years ago, Joseph Brooks, Production Manager, and C. J. Ripley, Maintenance Superintendent, installed the first Armstrong traps on their low pressure vacuum return heating system. Now they have 600 in use throughout the plant. The results have been an engineer's dream:

1. Fuel costs reduced $8,000 annually despite doubling of the factory's size and increased prices of coal.

2. One boiler did work of two after trap installation in original plant. Steam pressure was reduced from 50-75 lbs. to 22-27 lbs. Pressure is reduced to 4 lbs., with 6"-8" vacuum.

3. No trap repairs except cleaning in 10 years and no servicing of any kind where strainers were used ahead of traps. Armstrong Y-Type strainers have now been installed ahead of all No. 800 traps and all new traps are No. 880's with built-in strainer (costing less to buy and install than separate strainer and trap.)

This story of Balfour's $80,000 profit wouldn't be as significant if it were the only one of its kind. But, the frequency of such reports about Armstrong trapping establishes firmly the tremendous cost-reduction opportunities available to many plants throughout the country — perhaps to yours. Isn't it worth looking into?

Your local Armstrong Factory Representative or Distributor will survey your trapping without charge or obligation. Call him or write:

Bottom inlet and side inlet styles for all services.

FREE:
44-page Steam Trap Book —a complete guide to better trapping

ARMSTRONG MACHINE WORKS
806 Maple Street, Three Rivers, Michigan

ARMSTRONG MACHINE WORKS
806 Maple St., Three Rivers, Michigan

Please send me a "Steam Trap Book"

Name_____

Company_____

Street Address_____

City_____ Zone____ State_____

New General

G-E Conventional and Self-protected Distribution Transformers

Electric Transformer Plant

A progress report on construction at Hickory, N. C.

Early in 1955, ground was broken for a new General Electric distribution transformer plant near Hickory, N. C. Major construction has now been finished and machinery is being installed. Limited production has already gotten under way.

With the increase of industrialization and construction in the South, there is a greater demand for electrical distribution equipment from utility and industrial users. By locating this plant in the South, General Electric will be able to provide even better service on distribution transformers to Southern customers.

Eventually about 1000 people from the Hickory-Newton-Conover area will be employed at the new plant. This will be the second major transformer plant General Electric will have operating in the South. A Medium Transformer Plant was opened in Rome, Georgia, in May, 1954. Both of these plants are General Electric's answer to the booming electrical industry in the South. General Electric Company, Schenectady 5, N. Y. 431-47

Progress Is Our Most Important Product

GENERAL ELECTRIC

NEWS *for the South and Southwest*

Walworth Company's New Southeastern Headquarters

In a new, modern office-warehouse at 1600 Southland Circle, N.W., Atlanta 18, Georgia, the **Walworth Company** is offering expanded services to Southeastern manufacturing, utility and large service plants.

The new headquarters, advantageously located in Atlanta's Chattahoochee Industrial District, stocks the complete general line of Walworth steel, iron, and bronze and special alloy valves and pipe fittings.

Fred W. Belz, President of the Company; **Richard Strauss,** Vice President of Sales, New York City; **M. H. Luttrell,** Sales Manager of the Southeastern Division; and the Atlanta sales staff were recently hosts to the company's Southeastern distributors at the new headquarters.

At the Atlanta opening—RICHARD STRAUSS, V.P. Sales of The Walworth Co.; FRED W. BELZ, Walworth President; and M. H. LUTTRELL, Sales Mgr., Southeastern Division.

The Walworth Company has undergone considerable expansion during the past several months. Recent acquisitions as operating subsidiaries include: **The M&H Valve & Fittings Company** of Anniston, Ala., makers of valves and fittings for industrial sprinkler systems, waterworks and sewerage systems; **Alloy Steel Products Company, Inc.,** of Linden, New Jersey, manufacturers of stainless steel valves; **Southwest Fabricating & Welding Company, Inc.,** of Houston, Texas, fabricators of carbon and alloy steel pipe; and the **Conoflow Corporation,** Philadelphia, Pa., producer of pneumatic automatic valve control equipment.

Firestone Styrene Plant for Orange, Texas

The Firestone Tire & Rubber Company will build a 75,000-ton-capacity plant for the manufacture of styrene at its 1000-acre petrochemical manufacturing center near **Orange, Texas.** Firestone at the present time is the nation's largest single producer of synthetic rubber.

The new styrene plant will be located adjacent to the Company's recently announced 40,000-ton-capacity butadiene manufacturing plant which is scheduled for completion early in 1957. The styrene plant will be in operation early in 1958.

Coppus Eng. Acquires Sentry Valve Sales Rights

Coppus Engineering Corporation, Worcester, Mass., has acquired from the **McRae Corporation,** Glendale, California, exclusive manufacturing and sales rights of their Sentry Valves.

Sentry Valves are patented automatic quick-closing latch type valves and quick-opening piston valves. Coppus becomes owner of the trademark, "Sentry." Coppus has for many years been widely known for its steam turbines, portable ventilators and fanmix gas burners.

Manufacture and distribution of the Sentry Valves has been transferred to Coppus at Worcester, Mass. The latch type valves are widely used in the chemical, petroleum and gas industries for automatic closing of gas and fuel lines.

The "Sentry" line addition is a further carrying out of the Coppus policy of diversification of products and markets. The new line augments its service in the power plant, petroleum and chemical fields where Coppus products have become well established.

Wheelco — Baltimore & Houston

R. A. Schoenfield of the **Wheelco Instruments Division,** Barber-Colman Company, has announced the expansion of sales and service facilities in Houston and Baltimore.

A Wheelco Instruments Division Branch Office has been established in **Houston, Texas** with **William Thorrat** as branch manager.

Harold S. Hern has joined the sales-service staff in **Baltimore.**

Brunner Company — Georgia

Charles M. Heathman, recently a Brunner Sales Representative in the Chicago area, has been appointed Service Manager of **The Brunner Company, Gainesville, Georgia,** a wholly-owned associate company of Brunner Manufacturing Co. of Utica, New York.

As Service Manager, Heathman will be responsible for the coordination of field service, parts distribution, returned materials and warranties on all Brunner-Metics, semi-hermetic condensing units and motor compressors, manufactured in the Georgia plant.

Built on an Unassailable Foundation

PACIFIC®
BOILER FEED PUMPS

PARTS EITHER CIRCULAR OR CYLINDRICAL

CARE AND PRECISION DURING MANUFACTURE & ASSEMBLY

UNITIZED INTERNAL ASSEMBLY AMPLY SUPPORTED • FREE TO EXPAND

PRECISION BALANCING FREE FROM VIBRATION IN OPERATION

EXPANDS WITHOUT DESTROYING ALIGNMENT OR CLEARANCE BETWEEN PARTS

DESIGN CLEARANCES STAY PUT CONTINUOUS SMOOTH OPERATION

RING TYPE PRESSURE JOINTS
METAL-TO-METAL POSITIVE SEAL | SEALED TIGHT—NOT OPENED BY INTERNAL PRESSURE

HIGH EFFICIENCY LONG USE LIFE • MINIMUM MAINTENANCE

GOOD ENGINEERING AND DESIGN SUPREME QUALITY MATERIALS

CAREFUL, PRECISE WORKMANSHIP

For complete information on
Pacific Boiler Feed Pumps
Write for Bulletin 122.

PACIFIC®

PACIFIC PUMPS INC.
HUNTINGTON PARK, CALIFORNIA
Offices in All Principal cities
Export Office: Chanin Bldg., 122 E. 42nd St., New York

BF-23

The Booming South and Southwest . . .

New Plants — Expansions

√ Manufacturing Plants
√ Utility Plants
√ Large Service Plants

Highlights for August, 1956

South Atlantic

$3,000,000 oil processing plant underway at **Port St. Joe, Fla.** for **Badger Manufacturing Co.** . . . **Dibbs Aluminum Products, Inc.** making plans for $1,500,000, 110,000 sq ft factory in **Tampa, Fla.**

Atlanta, Ga. will shortly see the construction of a $500,000 electrical equipment assembly plant for **Square D Co.** . . . Plans underway for $1,000,000 facilities for rail and water transportation of chlorine and caustic soda for **Olin Mathieson Chemical Corp.** at **Brunswick, Ga.**

Proposed expansion of the **Ordinance Missile Plant** in **Charlotte, N. C.** . . . **Stein, Hall & Co., Inc.** will construct a $250,000 manufacturing plant, office building and laboratory in **Charlotte, N. C.,** which is expected to be completed by the end of the year . . . September 30 completion for the $200,000 addition to **Morganton Furniture Co.** in **Morganton, N. C.** . . . $100,000 branch plant of **Carolina Paper Box Co., Inc.** planned for **Wilson, N. C.**

Underway is **American Sugar Refining Co.'s** $2,250,000 plant in **Charleston, S. C.** . . . **Bowater Paper Co.** is considering a $50,000,000 paper mill for **Van Wyck, S. C.** . . . $20,500,000 addition planned for **Duke Power Co.'s** Lee Steam-Electric Generation Station near **Williamston, S. C.**

Muti-million dollar sewage collection and treatment system underway for **Lynchburg, Va.** . . . **American Furniture Co.** is erecting a $250,000 addition in **Martinsville, Va.** to its storage and manufacturing facilities . . . Plans underway for **Cargill, Inc.'s** 2,100,000 bushel grain export elevator in **Norfolk, Va.** — a multi-million dollar project.

$7,500,000 expansion of **Fairmont Aluminum Co.** is planned in **Fairmont, W. Va.** . . . **Koppers Co.** considering **Newell, Va.** as site of its $1,000,000 chemical plant . . . Analine plant planned for **American Cyanamid Co.** at **Willow Island, Va.** — estimated at $5,000,000.

These highlights briefed from SPI's SOUTHERN INDUSTRIAL NEWS SERVICE, a monthly publication issued exclusively to SPI advertisers and their representatives through the South and Southwest.

East South Central

$150,000,000 steam electric generating plant planned by **Southern Co.** and its subsidiaries on the Coosa River near **Birmingham, Ala.** . . . **Marathon Corp.** effecting plans for construction in **Naheola, Ala.** of its $55,000,000 paper mill, pulp mill and converting plant . . . Underway at **Plateau, Ala.** is the $20,000,000 addition to the **Hollingsworth & Whitney** division of **Scott Paper Co.** . . . **Tennessee Paper Mill Co.** laying plans for construction of $25,000,000 paperboard plant at **Sheffield, Ala.** . . . $300,000 plant in the electronics field to be constructed in **Opelika, Ala.** by **OR Radio Industries, Inc.** for the manufacture of magnetic recording tape for sound and color TV and "electronic brain" computers.

Kellogg Switchboard & Supply Co., a division of **International Telephone & Telegraph,** planning a $1,250,000 plant at **Corinth, Miss.** . . . **Mississippi Valley Portland Cement Co.** planning a $3,750,000 operation in **Warren County, Miss.**

Wheland Co. plans at **Chattanooga, Tenn.**—$3,500,000 foundry expansion and modernization, $500,000 ordinance expansion, and $500,000 for new equipment in the Southwest plant . . . Multi-million dollar expansion program at **Columbia, Tenn.** planned for **National Carbon Co.,** a division of **Union Carbide & Carbon Co.**—

(*Continued on Page* 14)

New Revolutionary Steam Trap

One large capacity seat for all pressures!

New Sarco Thermodynamic steam trap. Sizes ⅜ to 1" . . . each body as small as a tee fitting! Capacity is determined, not by a bulky body, but by the effective orifice, valve action, pressure drop and condensate temperature.

1. Cuts trap inventory—with the revolutionary Sarco TD steam trap, you use exactly the same trap... with exactly the same large capacity seat... for all pressures 10-600 psi... for heavy, light or no condensate load. Sizes ⅜ to 1".

For example, you can use the same Sarco Self-Adjusting TD on unit heaters (15 psi), on plastic presses (100 psi), on steam mains (450-600 psi)...without changing a single part...without adjustment.

Inventory greatly reduced... maintenance simplified.

2. All pressures 10 to even 600 psi!—without changes or adjustments. Self-adjusting. A trap with high pressure construction... at a low pressure trap price!

3. Operates perfectly when pressure fluctuates—absolutely no effect even from 600 to 10 psi! No water seal to evaporate. No adjustments.

4. Widest capacity range—the Sarco TD uses same large capacity seat for 10 as for 600 psi. Pressure of incoming air and condensate INSTANTLY AND FULLY raises valve head (disc), permitting maximum discharge.

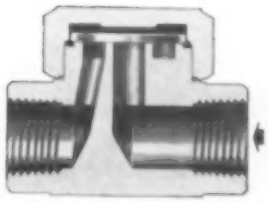
5. Operates equally well on all loads—on heavy, light or no condensate load. No prime to lose. No adjustments.

6. No steam leak required to operate the Sarco TD. Closes tight against steam!

7. No oversizing worries—you can size the Sarco TD for peak condensate loads... without risk of blowing steam on light loads... no prime to lose... no adjustments.

Convince yourself by 60-day trial... use coupon!

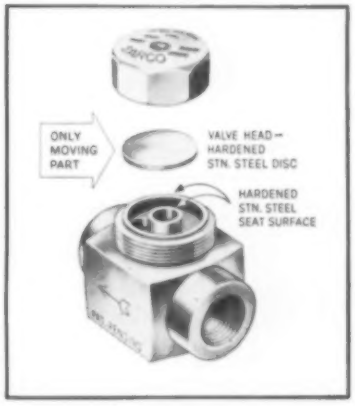
SARCO



Trouble-free design

Here is a trap so simple, it doesn't even have a valve closing mechanism. The kinetic energy of steam closes the valve. ONLY the new Sarco TD uses this operating principle.

No mechanism parts to wear or stick. No narrow channels to choke. No gaskets to leak.



Maintenance practically eliminated

The all-stainless steel Sarco TD has only 3 parts... cap, disc and body. Only moving part is a hardened SOLID stainless steel disc, practically wear-proof.

SARCO COMPANY, INC.
Empire State Bldg., N. Y. 1, N. Y.

Please send me Sarco TD Steam Trap and strainer for 60-day trial.
Size_____ For use on_____

Name_____

Firm_____

Address_____

City_____ State_____

2101-B

New Plants — Expansions (Continued)

annual capacity of new facilities to be more than 50,000,000 lb . . . $11,500,000 will be spent in **Kingsport, Tenn.** for improvements of **Tennessee Eastman Co.** . . . **Cargill, Inc.** will erect a $2,000,000 office and maintenance building for processing soybeans on **President's Island, Tenn.** . . . $3,288,000 sewage treatment plant to be constructed by the city of **Nashville, Tenn.**

International Paper Co. planning in **Pine Bluff, Ark.** a $57,000,000 paper mill . . . $200,000 commercial storage warehouse to be erected by **Frostyaire for Frozen Foods, Inc.** in **Searcy, Ark.**

Underway is the $40,000,000 expansion program in **Baton Rouge, La.** for **Esso Standard Oil Co.** which will take two years to complete . . . **West Monroe, La.** plant of **Forest Products** division of **Olin Mathieson Chemical Corp.** planned—to cost $40,000,000.

$35,000,000 **U. S. Navy** manufacturing plant for the production of high-energy fuel for missiles and aircraft engines planned in **Muskogee, Okla.** . . . **Container Corp.** planning a $1,500,000 plant near **Muskogee, Okla.** . . . $250,000 compost plant planned for **Norman, Okla.** by **Naturizer Corp.**

Brazos Electric Power Co-operative will use $7,500,000 in **Bridgeport, Tex.** for the construction of a generating plant and for building 108 miles of 69 kv transmission line . . . $300,000 plant planned by **Frito Co.** in **Houston, Tex.** . . . As part of its $1,500,000 expansion program, **International Furniture Corp.** will double the size of its **Jacksonville, Tex.** manufacturing plant . . . Underway is the $300,000 factory branch for **Hobbs Trailers** in **Lubbock, Tex.** . . . **Central Power & Light Co.** effecting plans for $7,000,000 power plant in **Mission, Tex.** . . . 75,000 ton, multi-million dollar styrene plant for **Firestone Tire & Rubber Co.** will be built in **Orange, Tex.** . . . Underway is the multi-million dollar expansion of **Gulf Oil Corp.'s Port Arthur, Tex.** refinery—to be completed by the end of 1957 . . . **El Paso Natural Gas Co.** planning a multi-million dollar plant near **Lake Trammell, Tex.** . . . $1,200,000 addition planned for **General Tire Co.** in **Waco, Tex.** . . .

Kansas and Missouri

Plans being effected for construction of $675,000 truck and sub-truck sewer system for the **Creve Coeur-Frontenac, Mo.** area . . . $600,000 manufacturing plant for the production of insulated cable to be constructed in **Kansas City, Mo.** by **Sequoia Process Corp.** . . . $9,500,000 plant underway in **Neosho, Mo.** for **Aerojet-General Corp.,** rocket engine manufacturers . . . $1,000,000 expansion program of **Carling Brewing Co.** underway at its **St. Louis, Mo.** and **Belleville, Mo.** plants . . .

News (Continued)

Cameron & Barkley Co. Expanding in Southeast

The Cameron & Barkley Company, southeastern distributors of industrial supplies and machine tools, is now a distributor for the full line of Mason-Neilan pressure reducing and regulating valves. These valves provide control of steam for the operation of many types of power plant equipment. In industrial plants they are used on ovens, stills, cookers, dryers, purifiers, washers, bleachers, etc.

The Mason-Neilan line is a natural complement to Cameron & Barkley's complete valve and fitting stock, which includes Lunkenheimer, Cooper Alloy, Manning, Maxwell and Moore and Tube Turns.

Rufus C. Barkley, President of The Cameron & Barkley Co., also recently announced that the company had been elected to membership in the American Machine Tool Distributors' Association, which is a group of 150 select firms. The Association promotes a closer relationship among builders, distributors and users of machine tools.

Cameron & Barkley, with branches at **Charleston, S. C., Savannah, Ga., Orlando, Tampa, Jacksonville** and **Miami, Florida,** is an authorized distributor for many leading machine tool lines. They were recently appointed distributor for the Backus cut-off saw, manufactured by the Backus Machine Works. Other well known machine cutting tools distributed include Delta, Eveready Brik-Saw, Hanchett, and Buffalo Forge.

Industrial Crane & Hoist Purchased by Borg-Warner

Borg-Warner Corp. has acquired the assets of Industrial Crane and Hoist Corp., fast-growing Chicago materials handling equipment manufacturer.

Industrial produces a wide range of overhead and other types of cranes, ranging from 500 pounds to 100 tons in capacity. In addition to overhead cranes, the company manufactures job and gantry cranes, hoists and trolleys, monorail systems and crane runways. This equipment is widely used in factories, mills, and other industrial installations.

Carborundum Zirconium Plant — Parkersburg, W. Va.

The Carborundum Company will increase its capacity for production of zirconium, a metal used in atomic reactors, to over 1½ million pounds per year with the construction of a new plant in **Parkersburg, West Virginia.** The multi-million dollar Parkersburg plant will be operated by Carborundum Metals Company, Inc., a Carborundum subsidiary.

H. K. Ferguson Company, general contractors of the plant has started construction and operation is scheduled for early 1957. Operation of the plant will be under the direction of **Niles C. Bartholomew,** Vice President and General Manager of the Carborundum subsidiary.

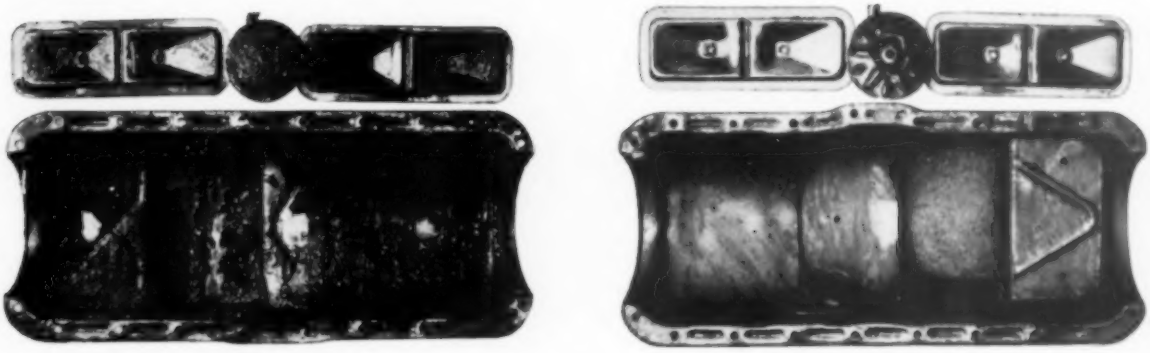
Century Electric — Alabama

Century Electric Company, St. Louis, recently announced that **John B. Hell,** Application Engineer of the company's Atlanta office, has been assigned to the post of Acting District Manager at **Birmingham, Alabama,** with headquarters at 831 North 19th St.

(Continued on Page 25)

PROOF POSITIVE...

of SINCLAIR Diesel Oil Superiority!



This is actual photographic proof of the superiority of Sinclair Diesel Lubricants. On the left is a truck engine sump in which an ordinary oil was used. The clean sump on the right reflects conditions when a Sinclair Diesel Oil, SUPER TENOL, was used. This same top quality lubrication performance can be expected from all Sinclair Diesel Oils . . . *because Sinclair has the exact oil to match your engine's requirements!*

Sinclair RUBILENE® – These high viscosity index oils, refined by Sinclair's famed Phetone Process, have a long history of outstanding performance and are extensively used in stationary Diesel power plants today.

Sinclair RUBILENE HD – These high viscosity index oils contain additives which provide excellent detergent – dispersant properties, oxidation resistance, bearing corrosion prevention and anti-foam qualities. They are especially suitable for stationary Diesels as well as the higher speed Diesels used in industrial plants.

Sinclair GASCON® –These naturally detergent, straight mineral oils are recommended for slow, medium and high speed Diesels where carbon deposits, engine cleanliness and easy, low temperature starting is important.

Sinclair GASCON HD – Heavy duty detergent type oils compounded with selected additives to provide extra detergent dispersant properties, bearing corrosion prevention, oxidation resistance and anti-foam characteristics.

Sinclair TENOL®, SUPER TENOL and TENOL EXTRA –A series of heavy duty, detergent–dispersant type, high viscosity index oils refined by the Sinclair Phetone Process. Recommended for all high speed automotive fleet Diesel engines, and for some engines of late design in stationary, portable and marine service. All three series contain varying degrees of additive concentrations necessary to give outstanding performance no matter what the service condition under which your Diesel operates.

For further information about Sinclair's trouble-proof Diesel lubricants, see your Sinclair Representative, or write Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N. Y. *There's no obligation.*

SINCLAIR

DIESEL OILS

WHERE TO GET IT *And How to Do It*

—INDEX OF HELPFUL BOOKLETS, BULLETINS, REFERENCE LITERATURE—

Cooperating with leading manufacturers of equipment and supplies, SPI makes available for the asking without cost or obligation, the following valuable bulletins, booklets, handbooks and catalogs.

Check the list, fill in Coupon, mail to SOUTHERN POWER & INDUSTRY. (Coupon Post Cards on pages 17 and 18.) This service restricted to those interested in the operation or design of Industrial, Power and Service Plants.

STEAM TURBINES . . . FURNACES BOILERS, STOKERS, BURNERS

1—Package Boiler—New compact, low cost package unit (oil or gas fired) for small space requirements is described in Bulletin DK-1. Pressures to 325 psi, steam capacities to 45,000 lb/hr.—E. KEELER CO.

2—Stoker—New bulletin describes the type C-C RotoStoker, a spreader stoker that automatically cleans the fuel bed and discharges the ash continuously at the front. Operates without smoke thru wide load range. — DETROIT STOKER COMPANY.

3—Boiler Cleaning — The Vulcan sequential, automatic soot blowing system, described in Bulletin 483, offers effective, economical boiler cleaning. Any boiler can be cut in or out of automatic sequence or blown individually from control panel. — COPES-VULCAN DIVISION, BLAW-KNOW COMPANY.

5—Turbine Generators — 1500 to 15,000 kw range covered in 35 p Bulletin 1960C-P. Types, applications, construction, and typical installations are featured.—WORTHINGTON CORPORATION.

9—Free Coal Counseling — General information on how Coal Bureau engineers will advise on selection, transportation and utilization of the right coal for your purpose.—NORFOLK AND WESTERN RAILWAY.

11—Feedwater Treatment—Bulletin describes liquid and dry (Braxon & Flako) boiler feedwater treatment recommended for removal and prevention of scaling and corrosion during use of many types of water and for prevention of foaming and carryover. — ANDERSON CHEMICAL CO.

48—Boiler Tubes—Booklet describes complete stock of boiler tube sizes and gauges for any make boiler; spares when you need them; specialty bending for any need.—BOILER TUBE CO. OF AMERICA.

60—Packaged Generator — Bulletin PG-55-3 outlines features of new generator line in capacities from 10,000 to 46,000 lb/hr. Shipped completely assembled—all ready for fuel, steam and electrical connections.—FOSTER WHEELER.

FANS—PUMPS—COMPRESSORS HEATERS—HEAT EXCHANGERS

103—Fire Pumps—Selection charts and "typical" fire pump specifications featured in 36 p Bulletin B-1500. 120 approved pumps tabulated by Underwriters' and Factory Mutual and listed according to types of drive.—PEERLESS PUMP DIVISION.

106—Compressor Valves — Bulletin illustrates Voss valves, used to replace original valves in compressors of any size, type, and make. Applications, advantages and efficiency under severe operating conditions outlined.—J. H. H. VOSS CO., INC.

108—Active Air—Catalog 2046 shows how to put active air to work in buildings and shops. Direct drive exhaust fans, air circulators, and ceiling fans. — EMERSON-ELECTRIC.

122—Industrial Fans—Bulletin 702A covers type XL Fans having 11" thru 60" inlet diameters, pressures to 18" SP, volumes to 130,000 CFM for industrial air and material handling.—CLARAGE FAN CO.

128—How to Solve Pumping Problems—Booklet, 36 pages — Explains the functions and characteristics of Rotary gear pumps; sample application problems with charts and curves on pipe friction losses, viscosity conversion tables, materials of construction for various liquids, and additional information pertaining to pump applications.—GEO. D. ROPER CORPORATION.

142—Centrifugal Pumps — Bulletin 720.4 gives interesting facts on the new Multi-purpose centrifugal pump line; specifications and performance curves.—GOULDS PUMPS INC.

160—Boiler Feed Pumps—12 p Bulletin 122 describes and illustrates the type BFI high pressure pumps. Design features, service ratings and engineering data included.—PACIFIC PUMPS, INC.

172—Pumps—Catalog A-156 covers double-suction, general purpose, single-stage centrifugal pumps for general service wherever liquids of low viscosity are to be moved; low maintenance; sizes up to 10 in. discharge.—C. H. WHEELER MANUFACTURING CO.

183—End Suction Pumps — Packaging plan, covering 22 pumps in sizes 1-15 hp, described in Bulletin B-2319. Easy stocking, storing, ordering and application with "redi-pak" plan. Features selection charts, head-capacity performance curves, etc.—PEERLESS PUMP DIVISION.

INSTRUMENTS—METERS CONTROLS—REGULATORS

209—Liquid Level Controls—Catalog describes controls for almost any liquid, at any pressure, at any temperature. Can be furnished in top-mounting, side-mounting styles, or as external float cage units. Almost unlimited application. — MAGNETROL, INC.

217—Water Columns and Gages—Bulletin 9-2-52, 4 pages—Illustrates and describes a line of boiler specialties, including round body water gages, safety water columns, round body bronze gages, liquid level gages. Tables and specifications. —ERNST WATER COLUMN & GAGE COMPANY.

221—Boiler Water Level Controls—Catalog describes control using magnetic operating principle. Up to three switch mechanisms can be furnished in standard models. Styles for nearly all pressures.—MAGNETROL, INC.

244—Desuperheater — Bulletin 1024 shows how steam assist desuperheater delivers more accurate control of final steam temperature for process work or auxiliaries. Close control, even at 10 degrees above saturated temperature. Minimum maintenance and long service life. —COPES - VULCAN DIVISION, BLAW-KNOX COMPANY.

253—Combustion Efficiency — Specs E65-1 & E12-5 describe oxygen-combustibles analyzer-recorder which provides continuous 2 in 1 check of combustion efficiency by recording both oxygen and combustibles in flue gas.—BAILEY METER COMPANY.

PLANT EQUIPMENT—WELDING TOOLS—PROCESS SPECIALTIES

315—Tanks of Steel and Alloys—Catalog 102-P&BS—All types of tanks for hot water storage, bulk liquid storage, oil or chemical storage, and other unfired pressure vessel use.—J. J. FINNIGAN CO.

318—Wrought Iron — "ABC's of Wrought Iron"—A concise digest of more detailed technical handbook material on wrought iron—describes resistance to corrosion, fabrication process—where needed—shock and vibration endurance.—A. M. BYERS.

336—Retaining Walls—Catalog RW 3555 shows how bin-type walls stabilize slopes and gain valuable ground for buildings, parking areas; all-metal cellular construction; all-bolted assembly means small crews can do the job.—ARMCO DRAINAGE & METAL PRODUCTS, INC.

351—Steel Grating & Treads—Bulletin 2486 describes electroforged steel grating and treads, their advantages and typical successful applications.—BLAW-KNOX EQUIPMENT DIVISION, BLAW - KNOX COMPANY.

384—Floor Grating — Catalog No. AT254 — Describes company's free planning and checking service for completely custom fabricated floor grating installations.—BORDEN METAL PRODUCTS CO.

386—Rigid Frame Buildings—8 page bulletin "Dixisteel Rigid Frame Buildings"—low cost, flexibility of design, durability, and minimum maintenance; also triangular or bow-string truss all-steel roof systems; fabricated for rapid erection. —ATLANTIC STEEL COMPANY.

PIPING, VALVES, FITTINGS STEAM SPECIALTIES, TRAPS

402—Forged Steel Valves—32 page supplement of Catalog F-9 covers new general purpose gate, globe and angle valves for 150-800 lb service. Featuring hard faced seating surfaces.—HENRY VOGT MACHINE CO.

403—Valve Operators—Folder shows how re-designed sprocket rim makes any valve readily accessible from the floor. Simplifies pipe layouts, prevents accidents, fits all valve wheels. — BABBITT STEAM SPECIALTY CO.

409—Lubricated Plug Valves—Catalog PV-4 covers operational features. Quarter-turn to open or close; lubricant grooves provide positive seal when valve is closed; when open, seating surfaces not exposed. —THE WM. POWELL COMPANY.

415—Welding Pipe Fittings — New catalog illustrates where to use Weldolet and Thredolet branch pipe fittings. Specific areas of application shown with correct installation procedure. Describes complete range of stainless, alloy and non-ferrous fittings and Bonney's new marking standard. — BONNEY FORGE & TOOL WORKS.

FREE Reader SERVICE
Use These
Handy Return Cards ➧

- **Circle Code Numbers of Catalogs You Want**
- **Fill in Your Name, Position and Company**
- **Tear Out and Mail Today! No Postage Necessary**

Please be sure to fill in your Firm's Name and your position on the Coupon. This service cannot be extended to you unless this information is furnished.

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT NO. 582, SEC. 34.9, P. L. & R., ATLANTA, GA.

Equipment and Review Editor
SOUTHERN POWER AND INDUSTRY
806 Peachtree St., N. E.
Atlanta 8, Ga.

Please send me without obligation, free booklets described in the August, 1956, issue of SOUTHERN POWER AND INDUSTRY as circled below.

1	2	3	5	9	11	48	60	103	106	108
122	128	142	160	172	183	209	217	221	244	253
315	318	336	351	384	386	402	403	409	415	419
420	429	431	440	443	483	491	495	511	512	552
564	603	607	614	620	627	639	657	666	701	703
705	709	710	713	721	725	738	749	784	800	801
805	854	909	936							

Also send further information on following New Equipment (page 72).

H-1	H-2	H-3	H-4	H-5	H-6	H-7	H-8	H-9	H-10	H-11
H-12	H-13	H-14	H-15	H-16	H-17	H-18	H-19	H-20		

Name ..... Position .....

Company Name .....

Street .....

City ..... Zone..... State .....

419—Small Gate Valve — Multiple applications of small forged steel gate valve noted in Catalog 10. Low maintenance. Sizes from ¼" to 2"; rising stem with yoke or rising stem with inside screw; Pressures from 380 psi at 1000 F to 2000 psi at 100 F.—THE CHAPMAN VALVE MFG. COMPANY.

420—Valve Controllers—30 p Catalog L-550 describes Limitorque motor - operated valve controllers which may be actuated either remotely or manually to open and close all types of valves. Readily adapted to microwave control.—PHILADELPHIA GEAR WORKS, INC.

429—Expansion Joints—Bulletin EJ-1914 describes Gun-Pakt slip-type joints which give long life—no fatigue failures; packing may be added as necessary, under full steam pressure right on the job—no unpacking, no shutdowns.—YARNALL-WARING COMPANY.

431—Steam Trap Book — 44 page steam trap book plus two reprints—"Flash at Traps" and "Vacuum Isn't Vacuum."—ARMSTRONG MACHINE WORKS.

440—Liquid Filters—12 p Bulletin 300 contains engineering and performance data, photos, descriptions of filtering media, recommended use of each, etc.—DOLLINGER CORPORATION.

443—PVC Fittings & Flanges—Corrosion resistant polyvinyl chloride pipe fittings & flanges covered in 12 p catalog, featuring characteristics, advantages, limitations, operating pressures, temperatures, field tests, etc.—GRINNELL COMPANY, INC.

483—Unions & Swing Checks—Catalog 11, 24 pages—Gives engineering data and specifications on a complete line of hot forged steel pipe unions and swing check valves. Special section devoted to Double-Start Unions, which provide faster opening and closing.—CATAWISSA VALVE & FITTINGS COMPANY.

491—Control Valves—Catalog 1500-B, illustrated — Describes complete line of Domotor, solenoid-operated and handwheel single seat control valves for handling difficult fluids under extremes of temperature and pressure. Offers full, unrestricted flow, positive plug and seat alignment and directional flow flexibility. —THE ANNIN COMPANY.

495 — Blow-Off Valves — Bulletin E-125 describes design and construction of quick-operating valves, angle valves, Y valves and duplex units specifically designed for boiler blow-off service. — EVERLASTING VALVE CO.

MAINTENANCE PACKING GASKETS, LUBRICATION

511—Maintenance Ideas—"Genius at Work" — Contains ideas about plant maintenance, bits of philosophy, new products and a description of the company's line. — KANO LABORATORIES.

512—Lubricator Vacuum Type Pumping Unit—If your plant is experiencing difficulty with visibility and excessive maintenance on lubricator sight glasses, the new 82 vacuum pumping unit will offer lower costs. Form 1263 gives principle of operation and advantages—MANZEL.

Please send me without obligation, free booklets described in the August, 1956, issue of SOUTHERN POWER AND INDUSTRY as circled below.

1	2	3	5	9	11	48	60	103	106	108
122	128	142	160	172	183	209	217	221	244	253
315	318	336	351	384	386	402	403	409	415	419
420	429	431	440	443	483	491	495	511	512	552
564	603	607	614	620	627	639	657	666	701	703
705	709	710	713	721	725	738	749	784	800	801
805	854	909	936							

Also send further information on following New Equipment (page 72).

H-1	H-2	H-3	H-4	H-5	H-6	H-7	H-8	H-9	H-10	H-11
H-12	H-13	H-14	H-15	H-16	H-17	H-18	H-19	H-20		

Name ..... Position .....

Company Name .....

Street .....

City ..... Zone..... State .....

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT NO. 582, SEC. 34.9, P. L. & R., ATLANTA, GA.

Equipment and Review Editor
SOUTHERN POWER AND INDUSTRY
806 Peachtree St., N. E.
Atlanta 8, Ga.

FREE Reader SERVICE
Use These
Handy Return Cards

- Circle Code Numbers of Catalogs You Want
- Fill in Your Name, Position and Company
- Tear Out and Mail Today! No Postage Necessary

Please be sure to fill in your Firm's Name and your position on the Coupon. This service cannot be extended to you unless this information is furnished.

552—Packing Removal Tool—Bulletin DHSP describes the Dura Hook that "works around corners" for removing old packing from stuffing boxes.—DURAMETALLIC CORPORATION.

564 — Anti-Corrosive Paints — Bulletin, "The Application of Subox and Subalox Paints" — Gives the story of a complete paint system for weather, moisture and alkali protection, with details as to application.—SUBOX, INC.

ENGINES, DRIVES POWER TRANSMISSION MATERIALS HANDLING

603—Monorail Case Studies—File F-1—Offers 20 new studies of engineered monorail applications in various industries. Factual information, complete with photos and plain drawings. — AMERICAN MONORAIL CO.

607—Variable Speed Drives—with touch control described in Bulletin 1600-B7 P. 1/3 thru 5 hp All-speed drives offer simple maintenance, minimum of repair parts, easy operator control, and flexibility. — WORTHINGTON CORPORATION.

614 — Vertical Transportation — Elevator Catalog — Describes and illustrates details of passenger and freight elevators, escalators, dumbwaiters, and modernization and maintenance equipment for use in industrial, utility and service plants. —OTIS ELEVATOR CO.

620—Conveyor & Power Transmission Chains—Catalog No. 34, 30 pages — Describes American Standard stock chains having figure 8 contour links, and chain pitch twice that of corresponding American Standard roller chains.—DIAMOND CHAIN COMPANY, INC.

627—Hand Trucks—Bulletin T-I describes full line of steel framed platform and two wheel hand trucks; specifications and applications.—THE FAIRBANKS COMPANY.

639—Mechanical Aerial Ladder—4-page catalog, describing features of Holan Series 2200 ladder, features new band-type brake, duo-level platform and rung construction.—J. H. HOLAN CORPORATION.

657 — Materials Handling — Catalog T-54, 34 pages—Gives structural details, specifications, engineering data, photographs on over fifty models of Fairbanks two-wheel and platform trucks, including hand trucks, steel framed platform trucks, lift jack platform trucks, wagon trucks and dollies. — THE FAIRBANKS CO.

666—Electric Power Drives—12 page catalog contains cut-away drawings illustrating various features of variable speed and slow speed gear reduction units, and totally enclosed splash-proof motors. Includes mounting and control information. — STERLING ELECTRIC MOTORS.

WATER TREATMENT, HEATING VENTILATING, AIR CONDITIONING REFRIGERATION, DUST & FUME CONTROL

701—Exhausting Corrosive Fumes—Bulletin 702-A shows how corrosive fumes can be exhausted with rubber, lead lined or specially coated fans.—CLARAGE FAN CO.

703—Air Conditioning—Bulletins 112 & 122 describe "controlled humidity" method where cooling and heating functions are made completely separate from adding or taking away moisture. No moisture sensitive instruments needed in flexible & compact design.—NIAGARA BLOWER CO.

USE SPI

READER SERVICE

See Service Cards

705—Test Your Tower—Bulletin offers simple, proven method by which you can determine how closely your actual tower performance measures up to specified performance. Particularly applicable to operations geared to temperature of process cooling water. — THE MARLEY COMPANY.

709—Heating & Ventilating Units—17 sizes in "HC" Line described and illustrated in Catalog 344. Air deliveries from 1,280 cfm to 32,500 cmf; Heating capacities from 26,200 Btu/hr to 2,227,000 Btu/hr.—McQUAY, INC.

710—Scale Remover—Bulletin shows how Anco Scale Remover quickly eliminates scale in boilers, water lines, refrigeration and air conditioning systems.—ANDERSON CHEMICAL COMPANY.

713—Electric Precipitators—26 page Bulletin 104 shows how units meet five engineering requirements —Positive control of gas flow; high, uniform electrode emission; Effective continuous cycle rapping; Simple, rugged construction; and Safe, trouble-free high voltage equipment. Gives 9 time-tested steps to a successful installation.—BUELL ENGINEERING COMPANY.

721—What Type Collector?—Reprint 102 discusses control of industrial dusts and flyash and features P-D Collector Systems.—THE THERMIX CORPORATION.

725—Cooling Tower—Bulletin CT-56-1 gives construction and operational details of new induced draft cooling tower. — FOSTER WHEELER CORPORATION.

738—Deaeration—Why? How?—Bulletin 4650 explains in capsule form fundamentals of deaeration and why it is so necessary in water conditioning. Principles, advantages, and application of various methods discussed.—COCHRANE CORPORATION.

749—Unit Heaters—Horizontal and down flow heaters, for use with steam or hot water, described in Catalogs 322 & 762. Ripple-Fin construction assures maximum heat transfer at lowest operating cost. Standard coils guaranteed up to 150 psig, saturated steam and 375 F.—McQUAY, INC.

784—Refrigeration Valves and Fittings—Catalog 0, 40 pages—Describes valves and fittings for ammonia, Freon and other refrigerants, for use in industrial refrigeration, ice making and air conditioning.—FRICK CO.

ELECTRICAL

800 — Cords & Cables — Bronco 66 Certified electrical cables described in new brochure. Electrical cords & cables made with 66% Neoprene jacket. — WESTERN INSULATED WIRE CO.

801—Motors—Bulletin describes and catalogs more popular a-c motors from 1 to 600 hp, for every process and manufacturing requirement. Single phase and polyphase; surpass NEMA specifications. — BROOK MOTOR COMPANY.

805—Power Factor Correction—28 page catalog shows how you can cut power costs by installing correction capacitors on motors and other inductive electrical equipment. Greater loads can be handled from existing circuits. Wiring, transformer and switchgear costs can be greatly minimized in new installations.—SPRAGUE ELECTRIC CO.

854 — Adequate Wiring — Booklet "Wire Ahead" — Discusses preventive maintenance in electrical systems — the symptoms of inadequate wiring—and plans for anticipating electrical demands. — ANACONDA WIRE & CABLE COMPANY.

OPERATING AIDS SUPPLIES & MISCL.

909—Industrial Skin Cleanser—Folder describes Vi-Lan Clean, a non-alkaline, non-acid, all-purpose antiseptic skin cleanser that prevents dermatitis and other skin conditions. Self-service dispensing units. — DAMERON ENTERPRISES, INC.

936—Stock & Weight Handbook—84 pages, gives complete information on all sizes and shapes of stainless and carbon steel products normally carried by steel warehouses. Useful charts and tables.—WAREHOUSE DIVISION, ATLANTIC STEEL COMPANY.

NOW

the right valves for more jobs!

Now you can apply high-quality Copes-Vulcan Valves to any application, at unlimited pressures in sizes up to 12 inches. Simplified design gives you this new versatility, plus high standards of performance for broader applications. Too, you will get the Copes-Vulcan custom-design, with ports exactly suited to the requirements of your operation.

Get in touch with your Copes-Vulcan man. He can help you apply the new Copes-Vulcan Valves to your control requirements. You'll get real dollars-and-cents savings in operational cost with less downtime in even those troublesome spots where ordinary valves are inadequate. Write for Bulletin 1027.

Piston-Type CV-P. For high-duty service. Extremely precise positioning gives you superb operating characteristics. Rangeability is high. Response can be characterized to meet your operating requirements. Designed for those applications which demand the ultimate in valve-operating force . . . . where you want the finest valve money can buy. Hand wheel is optional.

Diaphragm-Type CV-D. Either direct or reverse acting. High rangeability. Optional features include: Cooling fins and lubricator for stuffing box that will maintain low friction over longer packing life; hand wheel for emergency operation.

COPES-VULCAN DIVISION

BLAW-KNOX COMPANY

ERIE 4, PENNSYLVANIA

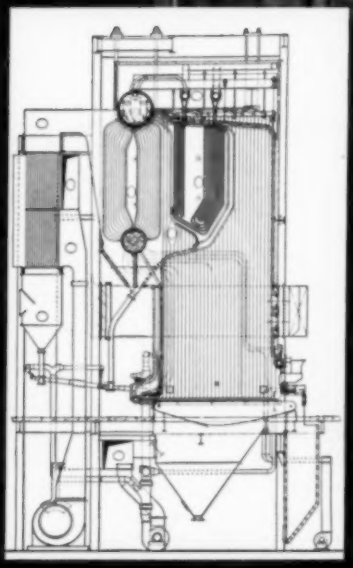
50th Anniversary

BLAW-KNOX

1906-1956

Mile High Plant Steam Generator Fired By DETROIT ROTOGRATE STOKER

Southern Colorado Power Co.



Southern Colorado Power Co.
Canon City, Colorado
W. C. Porter, Vice President in Charge of Operations
Chester Huskey, Superintendent

Stearns-Roger Manufacturing Co., Denver
Engineers—Constructors
Loeb & Eames, New York, Consultants

This new unit which triples the capacity of the plant consists of a Babcock and Wilcox two-drum single pass steam generator fired by a Detroit RotoGrate Stoker having six feeders and distributors. The plant is at 5,300 feet above sea level. Capacity of above unit is 150,000 pounds of steam per hour at 860 psi, 915° steam temperature with preheated air at 350° F.

Design is based on bituminous coal:

B.T.U. per lb as fired	10,828
Moisture	8.84%
Volatile matter	33.72%
Fixed Carbon	44.69%
Ash	12.75%
Sulphur (separately determined)	0.7%

However, operation has been completely successful with coal from various mines in the vicinity.

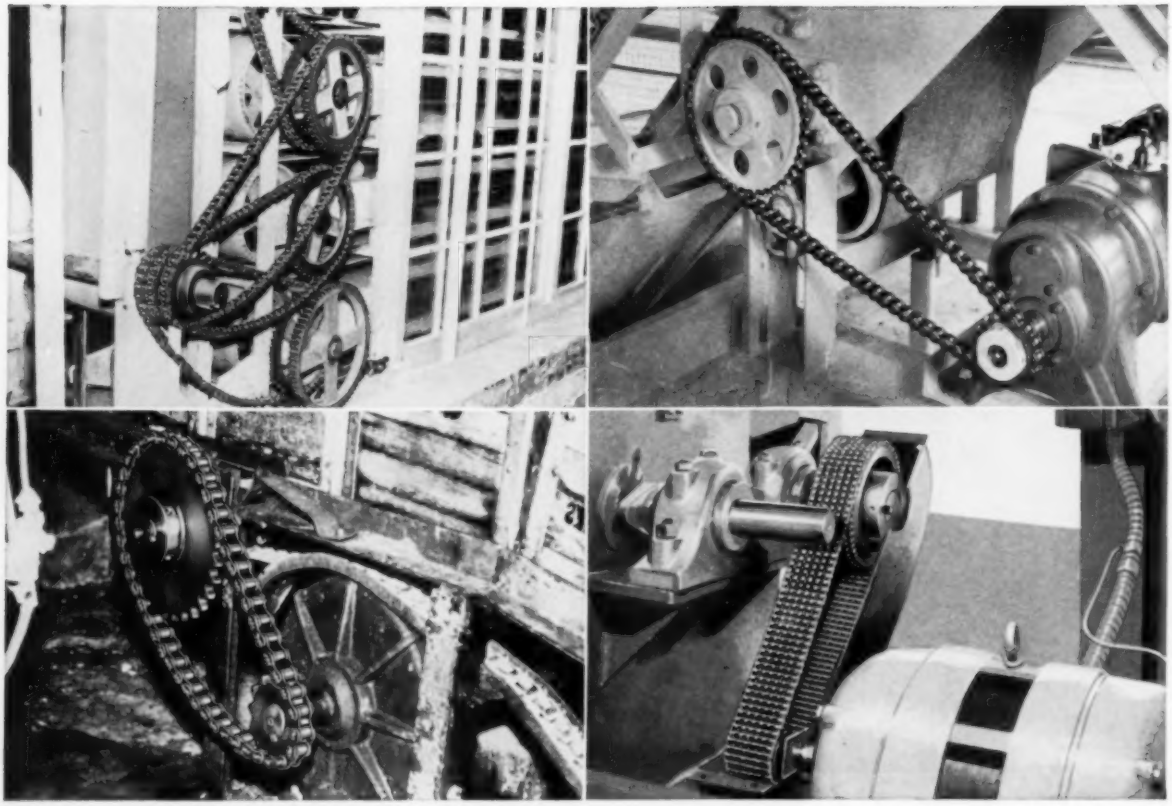
Detroit RotoGrate is an exceptionally efficient spreader stoker with overlapping highly restricted grates that move slowly forward discharging ash at the front. Permits high burning rates with all Bituminous coals, Lignite or refuse fuels. *Write for Bulletin.*

DETROIT STOKER COMPANY

GENERAL MOTORS BUILDING, DETROIT 2, MICHIGAN

Works at Monroe, Michigan: District Offices in Principal Cities

OTHER TYPES AND SIZES OF DETROIT STOKERS FOR EVERY INDUSTRIAL OR POWER NEED



Help Improve Daily Plant Output
with Diamond Roller Chain Drives

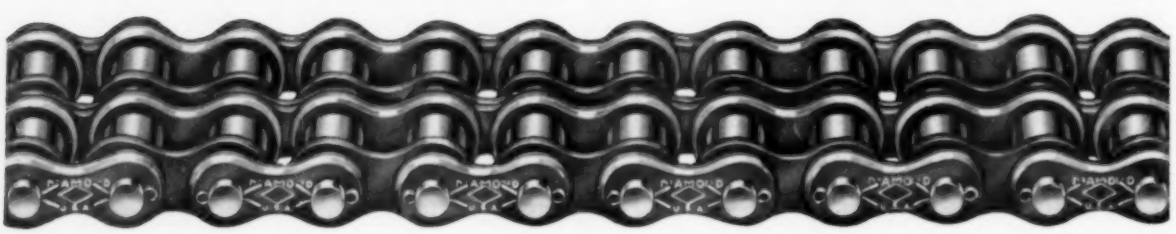
For simple power transfer applications; drives of fractional, several hundred or thousand horsepower capacities; or for lifting, handling, processing, conveying — Diamond Roller Chains can help insure better performance and steady top output.

The smooth non-slipping operation, long-life dependability, reserve strength, and high maintained efficiency of Diamond Roller Chain are a result of over 65 years of effort devoted exclusively to this one product. You will find *uniform* quality in every part, every link, and every foot.

If you re-examine your production layout now, you will find many ways to adopt Diamond Roller Chain for improved performance and increased output.

DIAMOND CHAIN COMPANY, Inc.
Where High Quality is Traditional
Dept. 612, 402 Kentucky Ave., Indianapolis 7, Indiana
Offices and Distributors in All Principal Cities

DIAMOND ROLLER CHAINS



PERFORMANCE VERIFIED / by acid test

Even before a Powell Valve is made, it must pass the acid test. For quality control of Powell Valves begins not with manufacture—but with the very materials which go into Powell Valves.

Constant laboratory control is one of the many ways we make certain that Powell Valves will give dependable flow control. Another is the final step of manufacture of these precision-built valves: *every Powell Valve is subjected to an actual line test.*

Because of Powell's painstaking quality control, valve repair is cut to the minimum and plant shut down through valve failure is substantially reduced. Records of performance the world over prove it.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our COMPLETE *quality line* which has PERFORMANCE VERIFIED.

The Wm. Powell Company, Cincinnati 22, Ohio . . . 110th YEAR

PERFORMANCE PV VERIFIED

FIG. 3003 WE—Steel Gate Valve
For 300 Pounds W.S.P.

FIG. 11365—Steel Pressure Seal
Horizontal Lift Check Valve
For 1500 Pounds W.S.P.

FIG. 11323—1500-Pound Motor
Operated Steel Pressure Seal
Gate Valve.

POWELL VALVES

BRONZE, IRON, STEEL AND CORROSION RESISTANT VALVES.


World's largest fleet of coal cars
62,000 coal cars, with 8,000 more on order, insure dependable deliveries from mines on the C&O
Chesapeake and Ohio Railway
WORLD'S LARGEST CARRIER OF BITUMINOUS COAL
For dependable deliveries of top quality coals, contact coal producers on the C&O. And if you need help in meeting your own particular fuel requirements, write to: R. C. Riedinger, General Coal Traffic Manager, Chesapeake & Ohio Railway Company, Terminal Tower, Cleveland 1, Ohio.

News (Continued)

Connell Promoted With Ft. Worth Steel & Mach.

Walt Connell has been promoted to a newly-created sales post of **Fort Worth Steel & Machinery Company,** Fort Worth, Texas.

He is now assistant to the vice president in charge of sales, M. S. Jackson, Jr. Previously Connell was the Fort Worth, Texas, firm's Midwestern regional sales manager, with offices in Chicago. His headquarters now is the company's main offices in Fort Worth.

Connell's new position, says Jackson, was established as part of the company's current program of sales expansion. The job has two major functions: (1) Research and negotiations in the selection and appointment of additional "Fort Worth" product distributors across the nation. (2) Aid to distributors in training of their sales staffs and other merchandising assistance.

FWS&M manufactures and markets nationally a variety of products widely applied in industry — including mechanical power-transmission equipment, conveying and elevating equipment and specialized machinery for feed mills and vegetable oil extraction plants.

Before joining FWS&M last fall, Connell was regional sales manager in Chicago for American Pulley Company. He had become a salesman for that firm in 1948.

Pennsalt Expansion—Ky.

The **Pennsylvania Salt Manufacturing Company** has announced expansion of chlor-caustic facilities at its **Calvert City, Kentucky** works as part of its $55 million growth program. The new unit will increase chlorine production from 50 to 150 tons a day with accompanying increase of rayon grade caustic soda production. It is anticipated there will also be an increase in caustic potash production.

With preliminary engineering completed and construction scheduled to begin in the near future, the new unit will go into operation during 1957. It will utilize facilities and services incorporated in the existing plant which was completed in 1953.

YOU CAN'T "AUTOMATE" MAINTENANCE

but you can beat today's critical maintenance problems with

FREE, VALUABLE WELDING HELP

direct from one manufacturer

EUTECTIC WELDING ALLOYS CORPORATION brings you **direct-from-manufacturer service . . . technical data . . . shop consultation-demonstration . . . valuable free welding aids . . . ways to minimize warping, distortion, cracking . . . countless solutions for your maintenance problems.**

Automation produces more for less, and as Southern industry increasingly applies the most modern of manufacturing techniques, the maintenance of machinery and equipment grows in importance. One part — a minor breakdown — can cause costly loss of production, downtime, and delayed shipment. Yet extensive inventories of replacement parts are too cumbersome . . . too expensive to maintain. **The answer is welding with Eutectic's exclusive "Low Heat Input" metal joining and repairing process. Here is why a phone call to your Eutectic District Engineer is your only answer to first-rate maintenance:**

IN YOUR OWN SHOP, the **Eutectic District Engineer** can show you how **"Low Temperature Welding Alloys"** will correct the common and uncommon ailments of base metals, and how new techniques can help you.

FREE WELDING LITERATURE — your's for the asking from your **Eutectic District Engineer,** plus metallurgical data, research information and help on maintenance or production shortcuts.

QUICK DELIVERY of the best "rod" for every need. Your **Eutectic District Engineer** has more than 150 different types of welding rods on hand. Whether you need **"Low Temp" EutecRods** or **"Low Amp" Eutectrodes,** get in touch with your **Eutectic District Engineer** for the fastest, finest service in the welding field.

GROWING WITH THE INDUSTRIAL SOUTH . . .
and at your service:
TWO NEW WAREHOUSE-SERVICE CENTERS

SOUTHERN WAREHOUSE-SERVICE CENTER, Atlanta Georgia • Telephone Cypress 3552

SOUTHWEST WAREHOUSE-SERVICE CENTER, 2204 Irving Boulevard, Dallas 7
In Dallas, call Randolph 7544 • In New Orleans, call Raymond 9089

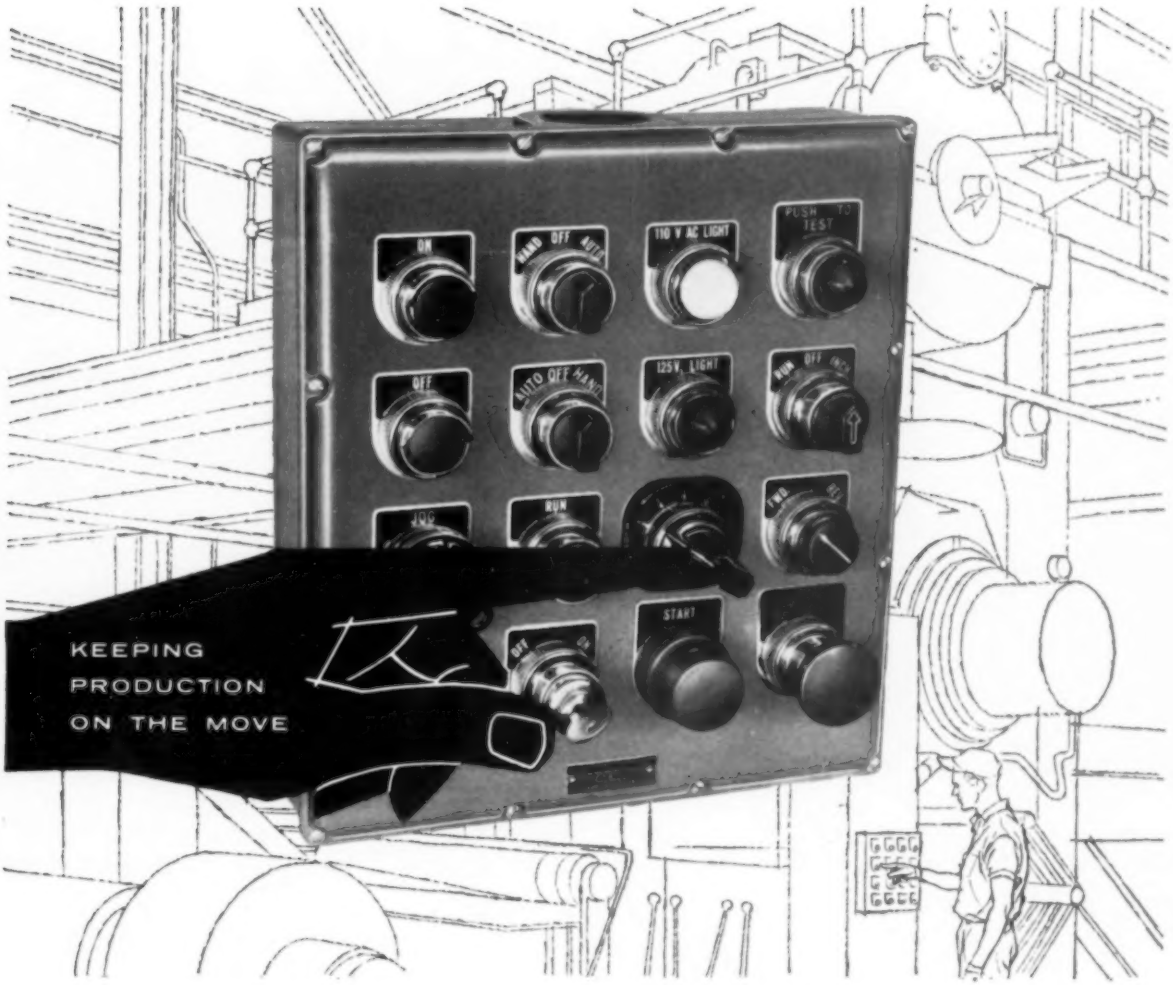
EUTECTIC is the only manufacturer of advanced welding alloys bringing industry service directly from convenient, near-by warehouse-service centers in Atlanta, Chicago, Dallas, Berkeley and other leading cities.

ORIGINAL
Low Temperature
EUTECTIC
WELDING ALLOYS

Plant, Research Laboratories and World Headquarters

EUTECTIC WELDING ALLOYS CORPORATION

40-40 172 STREET • FLUSHING 58, NEW YORK



. . . with Westinghouse Oil-Tite control stations—1 to 16 units

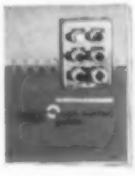
Interchangeable parts — stations, contact blocks, operators and indicating lights — right off the shelf, quickly give you a "tailor-made" Westinghouse Oil-Tite* control station to meet the requirements of any heavy-duty industrial equipment application.

Enclosures — die-cast and Bonderized — include cork-neoprene gasketing and close machine fits as positive seals against exposure to oil, coolants, cutting compounds, water and other foreign matter.

*Trade-Mark

New Pushbutton Guide

For more facts on why it will pay you to standardize with Westinghouse control stations, get a free copy of the new *Pushbutton Guide*, booklet B-6749. See your nearby Westinghouse salesman or write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-30210



WATCH WESTINGHOUSE!

*WHERE **BIG** THINGS ARE HAPPENING FOR **YOU!***

THERE'S A WESTINGHOUSE PUSHBUTTON TO MEET EVERY APPLICATION NEED!

WHY TROUBLE GOES OUT

when this turbine goes in

WHEEL CLEARANCES: AA—Rim clearance, B—Blade clearance, CC—Side clearance, (about one inch). Blades can't foul, as they are protected by rims. Rubbing at AA will do no damage. Side clearance is so large that end-play from excessive external thrust cannot damage wheel.

Main reason is the solid rotor, you can see at the heart of the turbine. It's a single forging of special composition steel. Unlike a built-up wheel, there are no separate parts to loosen or work out.

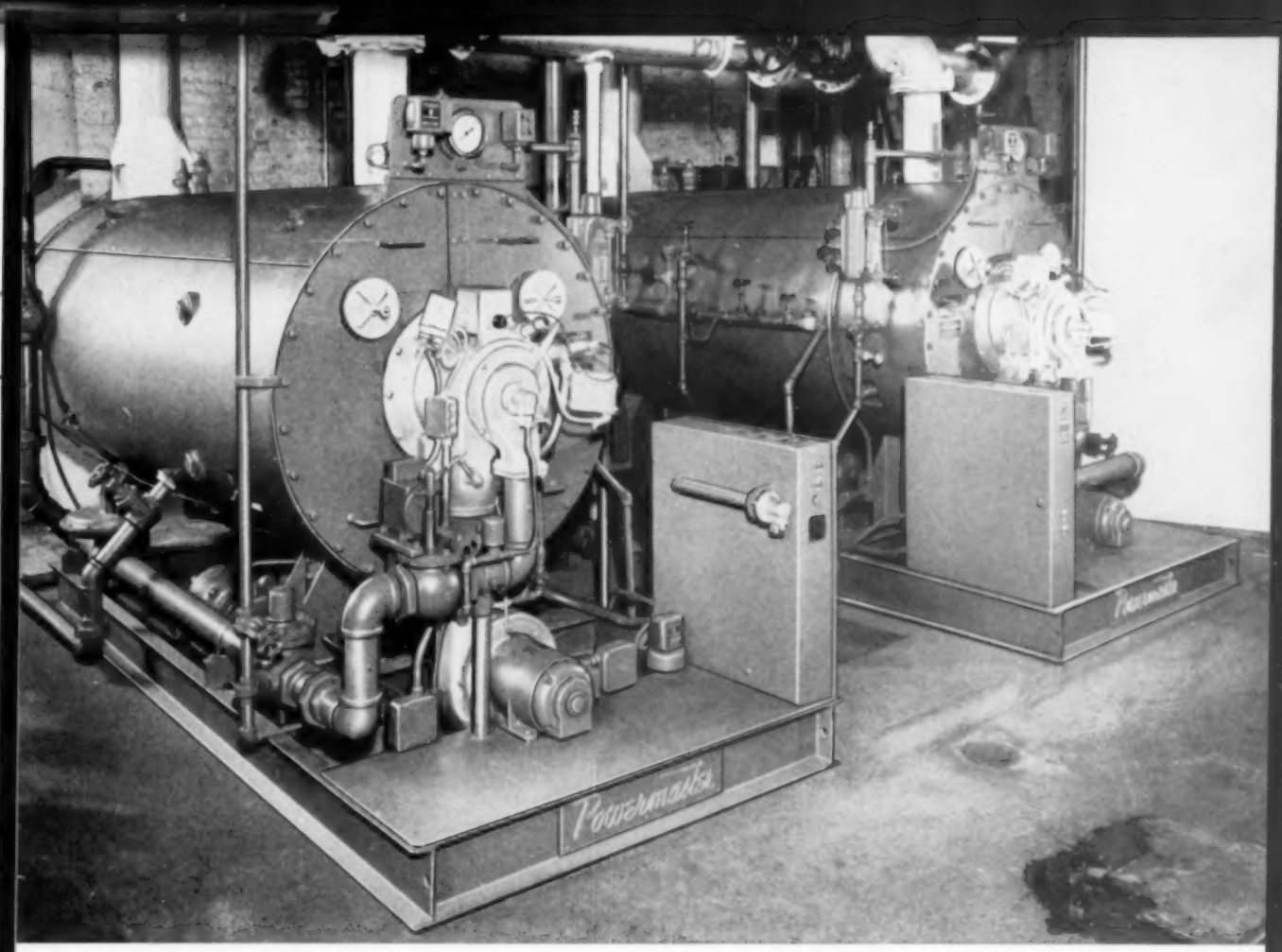
The Terry solid wheel turbine is built with large blade clearances, as shown in the diagram above. Because of this the blades can't foul. Close axial blade clearance is not necessary as the steam enters the buckets at right angles to the shaft.

The Terry turbine sustains efficiency through the years. Reason: The power producing action of the steam takes place on the curved surfaces at the back of the buckets, so blade wear which might occur is of little consequence.

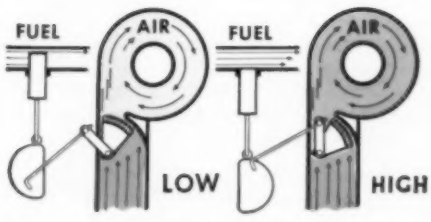
Bulletin S-116 tells more about these *"Work Horses of Industry."* Send for a copy today.

THE TERRY STEAM TURBINE COMPANY
TERRY SQUARE, HARTFORD 1, CONN.

TERRY



Why *Powermaster*® users come back for more!



Infinitely Variable Combustion Modulation

automatically maintains proper fuel-air ratio at the burner for most efficient firing at all loads. Instant response of this *Powermaster* firing control to load swings from 20% to 100% of firing rate saves fuel and assures constant steam pressure and temperatures.

Cost-saving, trouble-free performance of *Powermaster* Packaged Automatic Boilers in several multi-story plant buildings of a Mid-West implement equipment manufacturer led to repeated purchases as more steam capacity was needed. A large number of other *Powermaster* users also have bought additional units—again and again. That's because *Powermaster* has the features and advantages that spell out operating satisfaction—and savings—for all kinds of industries, buildings and service establishments. You can get the benefit of *Powermaster* performance and economy through Orr & Sembower's Pay-As-You-SAVE Purchase Plan. Why not call in our representative to explain why *Powermaster* is a money-saving boiler investment for modernization or new steam requirements. Be sure to send for latest bulletin.

Powermaster®

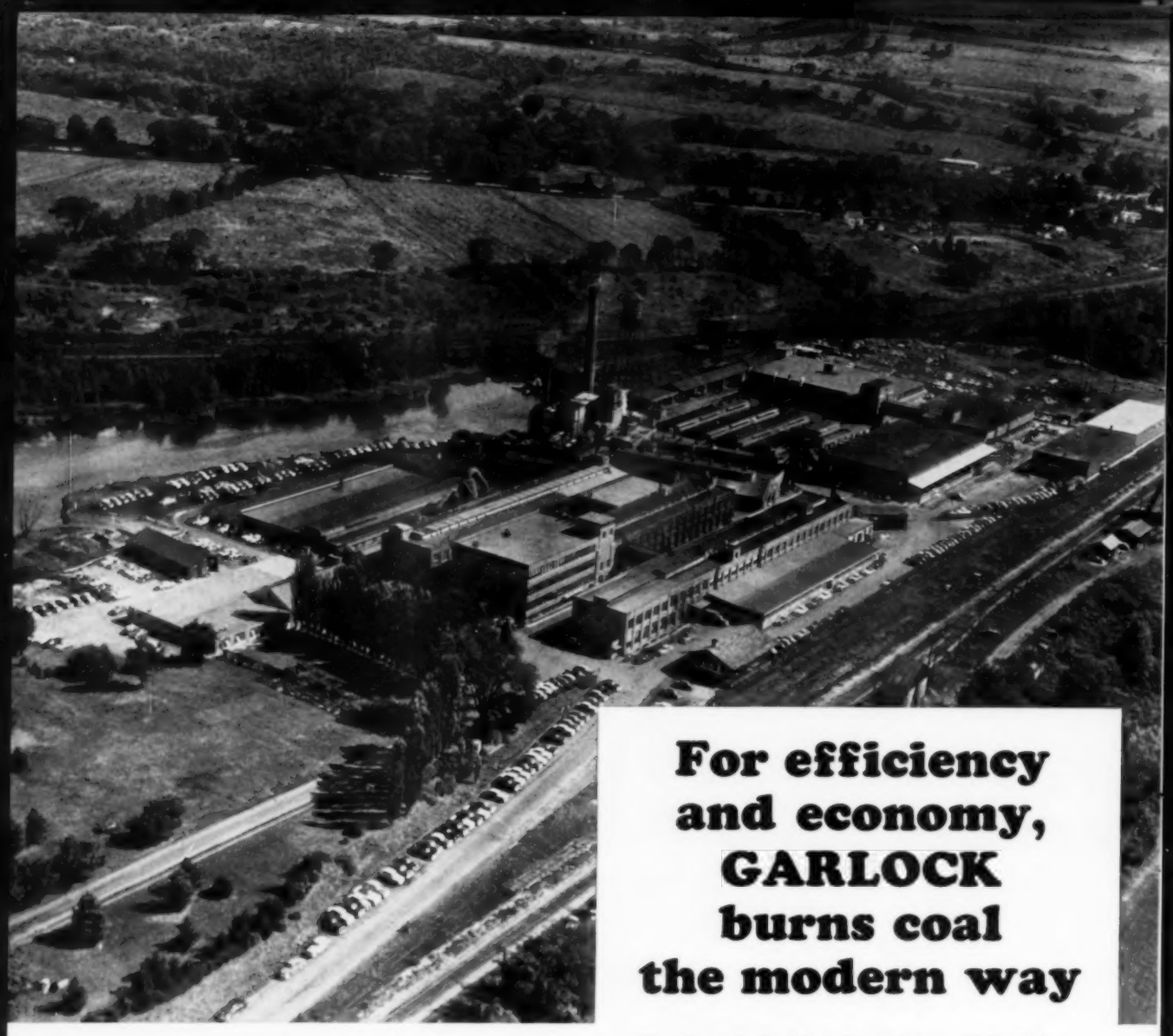
PACKAGED AUTOMATIC BOILERS

Sizes to 500 HP; pressures to 250 psi

ORR & SEMBOWER, INC.

Builders of Dependable Boilers Since 1885

Morgantown Road, Reading, Pa.



For efficiency and economy, GARLOCK burns coal the modern way

The Garlock Packing Co., Palmyra, N.Y., had a problem common to many growing firms. Production requirements threatened to outpace its power system. Steam capacity and electrical distribution were inadequate; heat balance was poor; equipment was obsolete. Any minor repair or inspection meant curtailed production. So Garlock called in Consultant L. J. Sforzini to study the situation and make recommendations.

The answer was *modernization* and today Garlock burns coal the modern way. A new 100,000 lb.-per-hr. spreader-stoker fired boiler, using older units as standbys, delivers steam for all needs with enough surplus capacity to handle a load growth. Cinder reinjection has improved stoker-firing efficiency. Pneumatic ash handling facilitates overall operation. With these and other changes, Garlock's power plant now operates at peak efficiency and economy.

For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.

NATIONAL COAL ASSOCIATION
Southern Building • Washington 5, D. C.

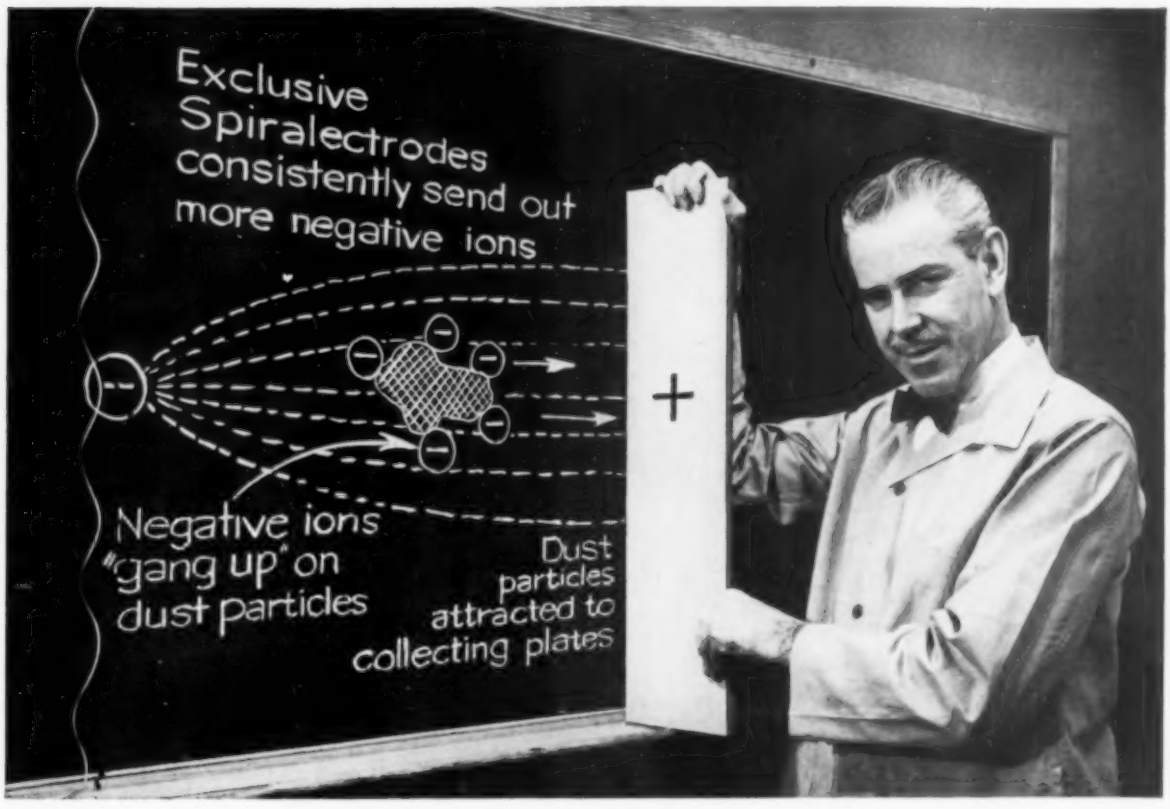
Consult an engineering firm

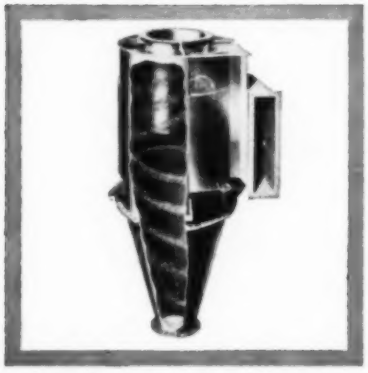
Designing and building hundreds of heating and power installations a year, qualified engineering firms can bring you the latest knowledge of fuel costs and equipment. If you are planning the construction of new heating or power facilities—or the remodeling of an existing installation—one of these concerns will work closely with your own engineering department to effect substantial savings not only in efficiency but in fuel economy over the years.

facts you should know about coal

In most industrial areas, bituminous coal is the lowest-cost fuel available • Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar • Automatic coal and ash handling systems can cut your labor cost to a minimum. Coal is the safest fuel to store and use • No smoke or dust problems when coal is burned with modern equipment • Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

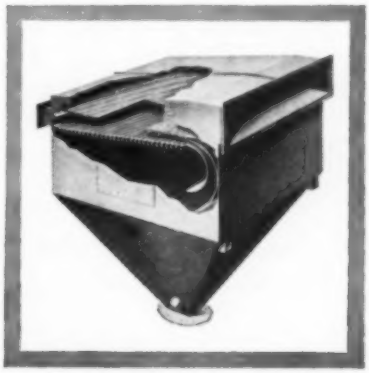
How a Buell Collection System "gangs-up" on dust to meet the toughest air pollution codes





Buell Cyclones also deliver extra collection efficiency to "gang-up" on dust: Exclusive Shave-off design harnesses double-eddy current and puts it to work.

With positive gas flow control for peak efficiency . . . plus continuous cycle rapping to eliminate puffing . . . Buell's "SF" Electric Precipitator really "gangs-up" on dust (even dust with high resistivity) to permit full production even under the most rigid anti-air-pollution codes.



Buell's Low Resistance Fly Ash Collector combines high efficiency to meet present day strictness, with low draft loss for natural or mechanical draft installations.

FOR THE COMPLETE STORY
Write:
Buell Engineering Company
Dept. 80-H, 70 Pine Street
New York 5, New York

buell®

MECHANICAL ELECTRICAL

Experts at delivering Extra Efficiency in **DUST COLLECTION SYSTEMS**

News (Continued)

(*Starts on Page* 10)

Thor Tool — Kansas City

Thor Power Tool Company, a leading manufacturer of portable air and electric tools, recently opened a new **Kansas City** factory sales and service branch May 1st.

The Thor branch will occupy a new building just completed at 606 West 17th Street. The site will serve as sales and service headquarters for distributors and users of Thor power tools in Kansas and Oklahoma and parts of Iowa, Missouri, Nebraska and the Panhandle of Texas.

E. C. O'Connell, formerly manager of the Thor branch in San Francisco, has been appointed manager of the new Kansas City branch.

G-E Announces Mass Produced Motors

The most modern electric motor plant in the world, featuring highly-mechanized production lines, was unveiled recently at Schenectady, N. Y. by the **General Electric Company.**

This is the first time electric induction motors in the 7½ to 30 horsepower range have been produced on a mass production basis. The new plant is designed to meet a rapidly expanding total motor market which is expected to be at least 75 per cent higher by 1965. Cost of the new facility was about $7 million, and it began limited operations early in 1955.

U. S. Radiator Corp.— Southeast

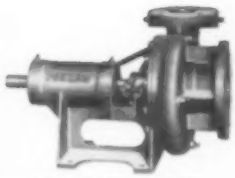
Two supervisory promotions in the southeastern states marketing staff of the Heating and Air Conditioning Div., **National-U. S. Radiator Corporation,** have been announced.

Robert C. Seaton is now district manager for the Southeastern District. He is currently supervising sales of the division's heating and air conditioning products in the states **from Virginia to Florida.** Succeeding Mr. Seaton as Richmond Branch Manager is **John M. Newlon, Jr.** Both Mr. Seaton and Mr. Newlon will maintain their headquarters at 1221 School St., Richmond.

How to Save

TIME \ MONEY \ ENERGY

TYPE PE FLUIDYNE INTEGRAL HP PUMPS
A complete line of electric close-coupled general purpose pumps. Threaded or flanged connections. Capacities: to 800 gpm; heads: up to 260 feet; motors: up to 50 h.p.

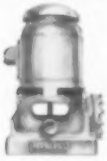


TYPE PB FLUIDYNE GENERAL PURPOSE PUMPS
Flexible coupled, single-stage, end suction, general purpose pumps. Rugged and durable. Capacities: up to 5500 gpm; heads: up to 260 feet; motor: up to 150 h.p.

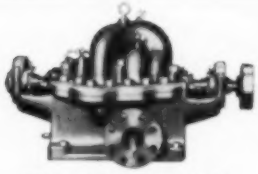
TYPE A GENERAL PURPOSE PUMPS
For application to the widest variety of pumping conditions. Single stage split case design. Capacities: up to 70,000 gpm; heads: to 300 feet. All types of drive.

TYPE AS GENERAL PURPOSE PUMP
The centrifugal pump with mechanical shaft seals that eliminate the packing box. Up to 4" in discharge sizes. Capacities: up to 750 gpm; heads: up to 210 feet.

BY BUYING FROM THE COMPLETE LINE



VERTICAL DEEP WELL TURBINE PUMPS
For application to deep well pumping. Lifts from 1000 feet or more. Capacities: up to 30,000 gpm. H.P. range: up to 1000 h.p. oil and water lubricated types. Widest range of sizes.

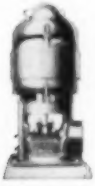


TYPE TU BOILER FEED AND PROCESS PUMP
2-stage high pressure pump for water and other liquids. Capacity: 50 to 3500 gpm; heads: up to 600 feet. Internal cross over is built into top half of pump case.

TYPE TUT MULTI-STAGE PUMPS
3, 4 and 5-stage pumps for water handling and process services. 1" to 5" discharge sizes. Capacity: up to 1350 gpm; head range: up to 1600 feet. Split case design.

INDUSTRIAL SERVICE PUMPS
For application to pits, sumps, basins, reservoirs and other surface water sources. Same capacity as deep well turbine above. H.P. range: up to 2500 h.p.

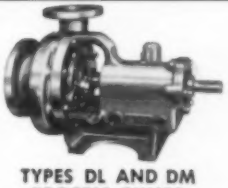
HYDRO-LINE PUMPS
An enclosed, close-coupled, vertical centrifugal process pump for handling petroleum hydrocarbons, where NPSH is limited. Capacities: to 6000 gpm; heads: to 1500 feet.



HI-LIFT PUMPS
The unique positive displacement deep well pump that literally squeezes water upward. Capacity: 10 to 55 gpm; lifts: up to 1000 feet. For wells 4" in diam. and up.

PEERLESS PUMPS

DISTRIBUTORS & SALES OFFICES
Everywhere!



TYPES DL AND DM PROCESS PUMPS
Single stage, end-suction chemical process pumps with maximum interchangeability of components. Open or enclosed impellers. Packing gland or mechanical seal. Capacities to 800 gpm. Heads to 430 feet. Temperatures: to 450° F.

SELF-PRIMING PUMPS
Rugged, compact, portable self-priming pumps manufactured to AGC specifications, seven models and types to choose from providing 4,000 to 30,000 gallons per hour.

FOR ALL YOUR PUMPS FOR ALL YOUR NEEDS—LOOK TO PEERLESS FOR:

THE COMPLETE LINE—
THE QUALITY LINE—
THE DEPENDABLE LINE—
THE ECONOMICAL LINE—
THE TIME-SAVING LINE!

PEERLESS PUMPS ® fmc

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPOPORATION
Address inquiries to Factories at:
Los Angeles 31, California and Indianapolis 8, Indiana.
Offices: New York; Indianapolis; Chicago; St. Louis; Plainview and Lubbock, Texas; Fresno, Atlanta; San Francisco, Los Angeles; Phoenix; Albuquerque.

MAIL COUPON FOR BULLETINS

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
301 West Avenue 26, Los Angeles 31, California

Check Literature Desired by Type

☐ TYPE PE B-2300 ☐ TYPE PB B-2300 ☐ TYPE A B-1300 ☐ TYPE AS B-1350 ☐ TURBINE PUMP B-141
☐ TYPE TU B-1400 ☐ TYPE TUT B-1400 ☐ INDUS. SERVICE B-100 ☐ HYDRO. LINE B-1700
☐ HI-LIFT B-142 ☐ TYPES DL-DM B-1600 ☐ SELF-PRIMING B-2000

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

SPI

announcing

a new line of **small-size easy-to-read** gauges and receivers

NEW **REPUBLIC** V5 **GAUGES**

Individual, Independent Measuring Units for
DRAFT • PRESSURE AND VACUUM • DIFFERENTIAL PRESSURE • TEMPERATURE
High Accuracy Receivers for Pnuematic Transmitters and Electric Meters Measuring
FLOW • PRESSURE • CO_2 • DENSITY • LIQUID LEVEL • OTHER PROCESS VARIABLES

Important Features

- FIVE INCH ILLUMINATED SCALES
- INDEPENDENT, INTERCHANGEABLE UNITS
- MULTIPLE OR INDIVIDUAL MOUNTING — from one to eight units to a single case
- EASILY MOUNTED—no panel drilling necessary in most cases
- SCALES EASILY CHANGED OR COLOR-CODED
- POINTER MOTION REVERSIBLE
- SIMPLIFIED CONNECTIONS AT BACK OF CASE
- REMOVAL FROM FRONT OR BACK

Now you don't have to sacrifice instrument performance and readability to size considerations. With Republic's new line of small-size V5 Gauges, you can save panel space, make more compact instrument groupings and *still* get the accuracy, sensitivity and readability you would expect from conventional sized instruments. Full sized diaphragms, bellows and helix units in V5 Gauges assure "big" gauge performance in an instrument that requires only one-fourth the panel space of conventional gauges. Five inch scales are almost flat and are indirectly illuminated as a standard feature for easy reading — even from a distance.

• ***Write for New V5 Bulletin*** ▶

REPUBLIC FLOW METERS CO.
2240 Diversey Pkwy., Chicago 47, Illinois

Quick as a cat... Quiet as a mouse

CHAPMAN
Tilting Disc Check Valve

There, in a nutshell, is the story of a Chapman Tilting Disc Check Valve . . . quick as a cat, quiet as a mouse. It's designed that way. It's built that way . . . for fast, sure, quiet action. Or, in other words, it's yours for best performance at lowest long-range operating costs.

With a Chapman Tilting Disc Check Valve, there's no noise, no vibration, no fluttering. There's no banging or slamming with damage to system or valve. There's no scraping or wearing of disc and seat. Your head loss or flow resistance is kept at a minimum.

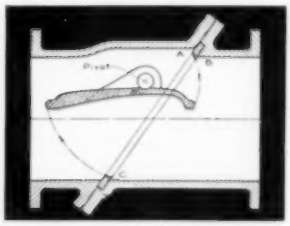
To put it briefly, with a Chapman Tilting Disc Check Valve, there's little or no maintenance even under severe operating conditions.

For Chapman Tilting Disc Check Valves in iron and steel . . . valves for handling fluids or gases under a wide range of pressures . . . valves for replacement or new piping systems . . . just check our Catalog 30-A. It's yours for the asking. Send for it now.

The CHAPMAN Valve Mfg. Company
INDIAN ORCHARD, MASSACHUSETTS

Never a Flutter, Never a Slam!

Designed and Built for Quiet Efficient Operation



In open position, specially designed "airfoil" disc balances perfectly. No vibration. No flutter. When flow subsides, disc drops quickly and quietly to a tight closed position. No jarring. No slamming. No damage to system or valve. Note enlarged area around disc to insure low flow resistance.

TIMELY COMMENTS

SOUTHERN POWER AND INDUSTRY

Maintenance Labor Costs

"**GREAT STRIDES** have been made in budgeting, cost control and planning and scheduling in production areas, yet these same techniques have not to any great extent been carried through to the maintenance operations," emphasized George E. Meyers, management consultant of Waban, Mass., before the recent 37th annual cost conference of the National Association of Cost Accountants.

The speaker pointed out that labor cost of **maintenance work is by far the most variable,** and presented a simple yet very effective cost control plan for use in controlling and reducing maintenance labor costs. He maintained that the control plan would result in:

(1) an improved organization structure, both as to personnel and allocation of duties,
(2) a planned preventive maintenance program,
(3) effective planning and scheduling of maintenance work,
(4) effective cost control of maintenance,
(5) minimum costs for maintenance consistent with maximum operating time of production facilities and
(6) a substantial reduction in maintenance costs.

The maintenance expert told the accounting group that these objectives are capable of accomplishment if management is first informed of and sold on the fact that adequate and qualified personnel would have to be provided to carry out the duties involved. He suggested that an entirely new organizational unit containing roughly **one individual for every 75 maintenance employees** should be established within the maintenance group and be charged with responsibility of **maintenance cost control.**

The speaker emphasized that to control and reduce costs, it is necessary to know costs, and the first step is logically to establish procedures which will **determine the costs.**

"A maintenance order writing procedure in conjunction with a time-keeping system should be inaugurated to provide a means for workers in each craft to charge every maintenance job with the hours spent thereon," he stated. "Standing or routine order numbers can be assigned to these jobs individually and by craft so that the costs expressed in man hours for doing this type of work can be determined. Orders should be numbered in sequence, should contain a fairly good description of the work required, and should provide space for charge account numbers for proper accounting distribution of costs."

"The second important step in determining historical man-hour costs," Mr. Meyers told the group, 'is setting up timekeeping procedures, and he listed three principal methods:

1. A central timekeeping whereby the workers report to a control desk the order number and the starting and stopping time for each job.
2. The worker can carry his own daily card and enter pertinent information.
3. The foreman prepares the daily job card of the worker or enters thereon the pertinent information for him.

The speaker cautioned that whatever method was used, an audit would have to be made to insure that the time shown on the workers' daily job card agreed in total with the overall time card by which the worker is paid.

"The next step is to provide a procedure whereby all the hours worked by each craft against each order or routine account number are accumulated so that the man-hour costs of every job can be determined." A base period of six months has been proved adequate for the establishment of man-hour cost standards to apply against all maintenance work (of a routine, repetitive and non-repetitive nature) to be undertaken in the future, excepting those jobs which might have a total cost of $2,000 or more.

"The climax to the cost control program and the barometer by which the effectiveness and the benefits of the plan are pointed out to management and maintenance supervision is the preparation of a **Cost Control Report** for each pay period," the speaker concluded. This report will reflect by craft three developments:

1. The trend in future costs of maintenance work as compared to base period costs.
2. The future effectiveness of maintenance personnel as compared to the base period.
3. The volume of maintenance work completed each pay period expressed in man-hours.

NEW USE FOR GRATING -- SUN SHADES FOR MODERN SCHOOLS

Light aluminum grating for SUN SHADES on schools is in perfect harmony with modern school design — allows 80% passage of light and air without the accompanying penetrating rays of the sun. Because they are aluminum they are maintenance-free. Furthermore, they provide a permanent working platform for easy access to windows.

Only the finest precision manufacturing would satisfy the architect who designed the school shown here. BORDEN is recognized as a leader in quality custom-manufactured gratings, in ferrous and non-ferrous metals.

Other uses for grating in school design: Areaways, boiler rooms, laboratories, gridiron catwalks in auditoriums and gymnasiums, footscrapers and window guards.

Write for complete
information on BORDEN
All/Weld, Pressure Locked, and Riveted Floor
Gratings in this FREE 8-page catalog

BORDEN METAL PRODUCTS CO.

853 GREEN LANE ELizabeth 2-6410 ELIZABETH, N. J.
SOUTHERN PLANT—LEEDS, ALA. — MAIN PLANT—UNION, N. J.

BORDEN METAL PRODUCTS CO.

Gentlemen:

Please send me BORDEN Catalog AT254

NAME .....

TITLE .....

COMPANY NAME .....

ST. AND NO. .....

CITY AND STATE .....

INDUSTRY SPEAKS

. . . But Why All the Rush?

YOU OFTEN SAY, "All right, I'm convinced we need atomic power . . . but why the rush? Can't we develop it when we need it? After all, the fossil fuels will last for many years."

At a recent American Marketing Association meeting in Pittsburgh, **W. Dee Shepherd,** manager of **Westinghouse Commercial Atomic Power Activities,** gave three principal reasons for his company's belief that we should pursue this development as rapidly as possible.

"First, we don't want to run out of fossil fuels. There are so many uses for gas, oil and coal, that depletion of these resources would be tragic.

"Secondly, as these fuels are depleted, the law of supply and demand, as well as the exploitation of inferior sources, will drive the cost upward. This would have a disastrous effect on our standard of living.

"Third, we will have to spend a good number of years before we have the final answer in the development of atomic power. We are certain we have not started too soon. The most realistic informed estimate is that, **in the year 2000, 30% of our electric power will be produced from atomic energy.** There is a tremendous amount of engineering know-how to be gained to meet this objective. There is also a whole new set of manufacturing facilities required to meet this goal.

"The magnitude of the goal can be appreciated when you realize that **30% of the electric power in the year 2000** probably represents **more power facilities than are in existence today.**

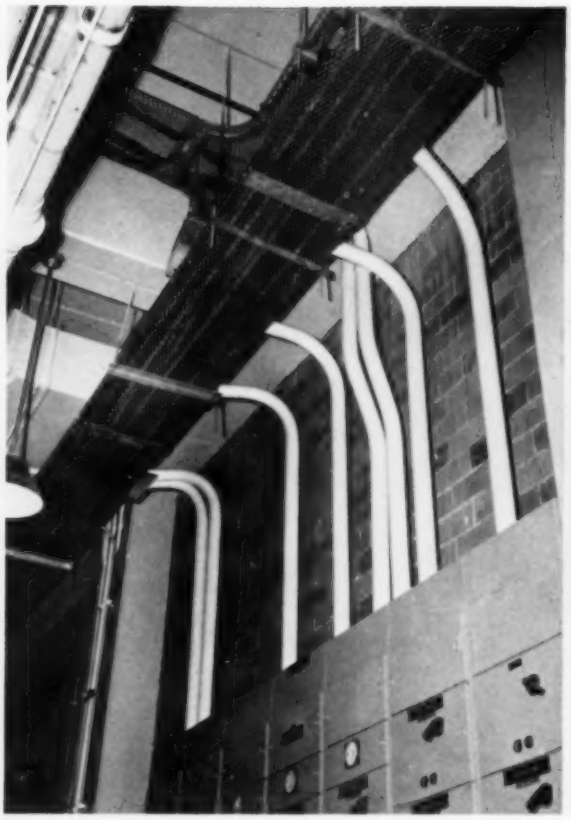
"The nuclear steam generator is fundamentally a heat source. It can be compared to today's boilers which are used in all industries to produce steam. There are many ways in which a nuclear steam generator can be designed. All of them can generate heat, but all of them represent a different family of engineering designs. The nuclear steam generator is a very large and complex piece of apparatus.

"The Yankee atomic power project will utilize slightly enriched uranium clad with stainless steel as the fuel in a pressurized water reactor. The Consolidated Edison project in New York utilizes thorium in a pressurized water reactor. The Commonwealth Edison project has a boiling water type reactor, and the reactor for Consumers Public Power will be cooled by liquid sodium. The Pennsylvania Power and Light-Westinghouse project contemplates a reactor using a homogeneous type of fuel wherein the uranium is mixed right in with water and held in suspension. There are also plans to build nuclear reactors using gases as coolants.

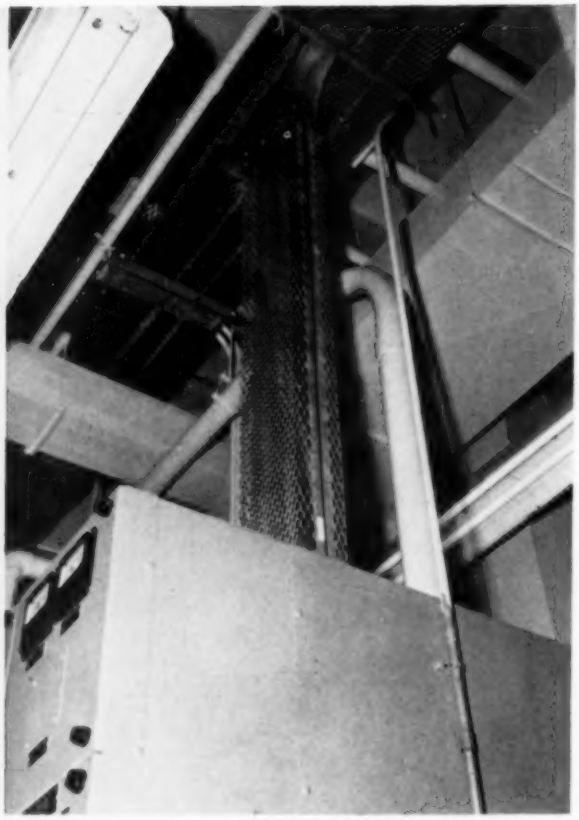
"We are, therefore, on the threshold of defining a specific product. This threshold can be compared to the state of technical development in that period of our industrial history when American industry was attempting to determine whether or not electricity of the alternating current type should be used in contrast to direct current. Until operating experience has been obtained from the various prototype units, the reactor manufacturers are **basing commercial decisions on the calculations and estimates of their engineers.**

"When a customer buys a product, he expects it to perform in a satisfactory manner for its intended application. If it does not, he looks to the manufacturer to either replace it with a product that will do the job or refund the purchase money. The customer expects the product to be free from defects. He also wants to limit his liability and pay a firm price. Guarantees, price policies, and operating standards are only a few of the considerations which have to be given to the launching of a new product.

"But in the field of atomic power, the state of our technology again raises certain problems which have to be faced up to with firm decisions. I will pose my point in the form of a question: **'Can a reactor manufacturer guarantee the output and life of a plant which has never been built?'** This should surely illustrate the fact that the commercial policies which are just being formulated in the atomic power industry have not yet reached the point where we can apply intact procedures which we currently use in selling conventional apparatus.



Cable trough installation above switchgear panel viewed from below. Note accessibility and appearance. Additional drop-cuts can be placed at any point along the trough.



Cope Expanded Metal Cable Trough forms a completely drop-out for high concentration of power and control cables going into switchgear panel cabinets at Scott Paper Company.

Scott Paper Company Revamps Power Distribution System

Electrical Cables Carry More Amperes

SCOTT PAPER COMPANY is redesigning the power distribution systems in its mills for greater economy and efficiency. Scott engineers have made a careful analysis of various cable supporting systems that shows a lower installed cost for expanded metal cable trough than for any other system.

The advantages of this type of cable trough over other supporting systems are its great savings in installation costs, particularly labor costs, savings in materials, savings in space, and its flexibility. Expanded metal cable trough also permits higher current ratings for cables than does conduit. Cope Cable Trough has so far been installed in three Scott mills and materials are ordered for that company's Mobile Alabama Mill. Present plans call for the use of expanded metal cable trough in Scott's future plant expansion and modernization.

The first major installation of cable trough by Scott provides power for four paper machines. The cable is supported in trough used as a raceway. Each machine requires about 1600 ft of trough including feeder lines — a total of more than 5,000 ft in the mill. Since that first installation, two other mills have been similarly equipped.

It is interesting that all of these mills will also include the expanded metal trough for support of instrument tubing for which it is equally applicable. The Instrof Division of Cope supplies the trough for this purpose.

More Amperes

One of the biggest factors in savings, besides lower initial cost and easier changes, is the increased current carrying capacity of the

Cable Size at Constant Current (50C or 122F ambient)

Current	Conduit	Double Layer in Trough — 0.8 of air rating	Single Layer in trough-full air rating
225 Amps	350 MCM	250 MCM	200 MCM

Current Rating at Constant Cable Size (50C or 122F ambient)

Cable Size	Conduit	Double Layer in Trough — 0.8 of air rating	Single Layer in trough-full air rating
400 MCM	252 Amps	327 Amps	400 Amps
500 MCM	285 Amps	371 Amps	464 Amps

cables when used in cable trough as opposed to conduit. For example, a 600 volt line carrying 285 amps would require 500 MCM cables in conduit as opposed to a 350 MCM cables in trough. This trough rating is for double stacked cable with an 0.8 of air rating allowance for double stacking.

Scott's current ratings are very conservative based on an ambient temperature of 50 C (122 F) when 40 C is usually considered ample for this type installation. Many industrial installations have been figured on a 30 C ambient. Scott allows for the extra temperatures that may be encountered over calender rolls, pulp driers, etc. calculating the maximum temperature exposure and basing the entire circuit on the maximum that may be present in only one small area.

The accompanying table shows examples of the relative current carrying capacity and cable sizes.

Control cable and wiring for motors up to 10 hp on 600 volts is #12. Occasionally #14 wire is used for controls but since #12 is used for small motors, #12 has been standardized to avoid confusion. Power cable carries voltages up to 13,800 and cable trough is completely satisfactory.

Labor Savings

Scott states that the biggest single advantage of cable trough is the labor saved at the time of installation. Crews with power saws and welding equipment assemble several lengths of trough on the floor and lift the entire run into position. This is readily possible since a 10′ length of 12″ width Expanded Metal Cable Trough weighs only 36 lb. A 10′ length of 4″ rigid wall conduit weighs approximately 90 lb. And 7 — 4″ conduit are needed to carry the same amount of cable as 1 — 12″ expanded metal trough (solid trough is not only heavier but requires lower cable current ratings). Since a simple connection of 2 sections of trough takes no longer than a simple connection of 2 sections of conduit, the labor savings are very great.

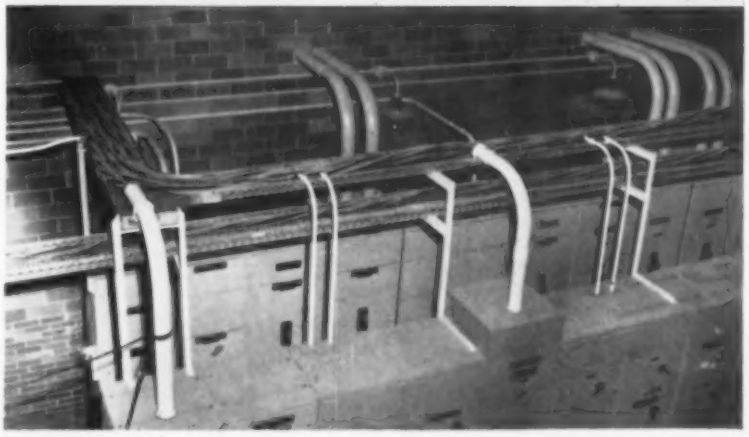
Material Savings

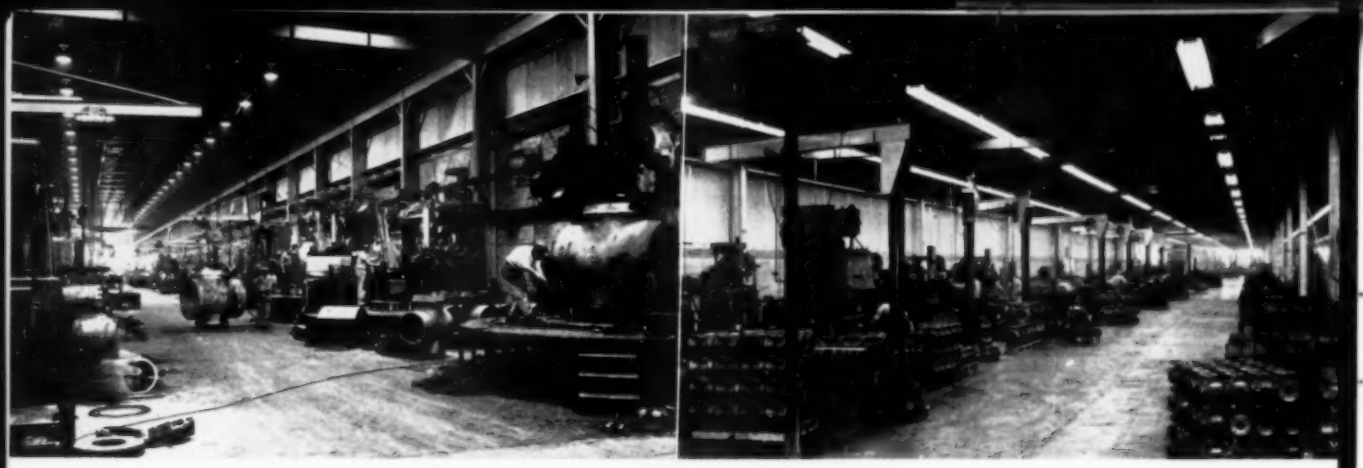
Material savings also are appreciable. A 24″ wide trough will

(*Continued on Page* 45)

Upper—Conduit and expanded metal cable trough drop-outs through the bottom of the trough support cables serving motor generator.

Lower—Power and control cables fed to switchgear in a Scott Paper Company mill are readily accessible for additions or changes. Note also neat uncluttered appearance in spite of cable concentrated at the control center. Cover on trough where it passes through the wall has been removed for the photograph.





12 Acre Valve & Fittings Plant Has 2250 Ton Air Conditioning System

W-K-M Manufacturing Company, Inc., Houston, Texas

AN OUTSTANDING example of factory air conditioning purely for employee comfort is W-K-M Manufacturing Company's new multi-million dollar, 500,000 sq ft metalworking plant at Missouri City, Texas, just outside of Houston. The plant's 2250 ton cooling system converts to wintertime heating by the circulation of heated water through the piping system.

The manufacturing plant system serves 14 zoned areas through high pressure air ducts distributing a total of 600,000 cfm. The high pressure design permits smaller duct work, thus providing more space for manufacturing facilities as the roof of the building could be kept relatively low. This also allows installation of a lighting system not more than 15 ft above the floor for efficiency and comfort of the employees.

Conditioning System Data

Five penthouses strategically located contain the equipment required to cool and heat the production spaces. Each penthouse has several sets of heating and cooling equipment to provide zoning in the conditioning of the various spaces. Each set of equipment consists of fans for circulating the air, air filters for cleaning, heat transfer surface, and electronic controls for maintaining the desired comfort conditions. The Trane Company supplied all the major air conditioning for the W-K-M installation.

Trane centrifugal blower type fans have a total capacity of 470,-

About the company . . .

W-K-M Manufacturing Company, a subsidiary of ACF Industries, Inc., is itself a combination of W-K-M Manufacturing Company, Inc., Houston, a manufacturer of gate valves for oil production and pipe line installations; **The Key Company,** East St. Louis, manufacturer of return bends and welding fittings for refineries and chemical processing plant; and the **ACF Valve Division,** Detroit, producer of lubricated plug valves for all industrial uses.

Engineering, production and sales activities of the three concerns are now concentrated in the new facilities near Houston, Texas. Although the three are under one roof, the plant is so designed that each product group has its own individual product lines.

The plant's 1100 employees make valves of all sizes in gate and plug valves up to 34-in. in diameter; a line of lubricated plug valves from ½ to 30-in.; and a complete line of return bend fittings for oil refineries, of piping fittings for power plants, oil refineries, and chemical industries; and joint sealing compounds for sealing threads and gaskets in water, oil, steam, acid and gas lines.

J. S. Downs, President of W-K-M Manufacturing Company, heads up the expanded organization; **H. Ben Young** is Director of Engineering; **Robert O. Wynn,** Production Manager; and **Tony Mann,** Plant Superintendent.

FAR LEFT — Looking down machine-tool aisle of the ACF valve section. These are specially tooled multiple operation machines.

LEFT — W-K-M pipeline valve machining line. Battery of boring mills, multiple spindles and other specially tooled machines in this line, are typical of the enlarged production capacity of the plant.

300 cfm. Before distribution to the various zones the air is cleaned in American Air Filter Company automatic replaceable media type air filters. After cleaning, the air is forced over extended fin and tube type heat transfer coils. Hot or cold water is circulated through the tubes to cool or heat the air according to the demands of the season.

Minneapolis-Honeywell controls provide the means of controlling the air instantaneously as the cooling and heating requirements vary minute by minute. An Ingersoll-Rand double suction centrifugal pump circulates 324,000 gallons of water each hour.

Two gas fired Cleaver-Brooks scotch marine type boilers heat the water. Cooling is done by three 600 hp hermetically sealed centrifugal refrigeration machines — Trane Company CenTraVacs. Without an attendant and under automatic pneumatic controls furnished by Johnson Service Company, one, two, or three machines may be operated individually or together as the load fluctuates from the heat of the day to the cool of the night. Heat removed by the CenTraVacs is transferred to condenser water which is circulated by a 250 hp pump and cooled in a Marley cooling tower equipped with three fans.

Utilities

Power comes to the plant at 12,000 volts. At a substation it is stepped down to 480 volts for plant distribution through a bus duct system. For lighting, current is further reduced to 277 volts. Each motor and each lighting fixture has its individual fuses in its own housing, which simplifies maintenance, especially for the fluorescent fixtures.

Water supply is from a 125,000 gallon capacity elevated tank. In addition, there is a 500,000 gallon concrete lined open reservoir, which is supplied by roof drainage. In addition to routine uses, this water supply supports the sprinkler system as well as the induced draft cooling tower.

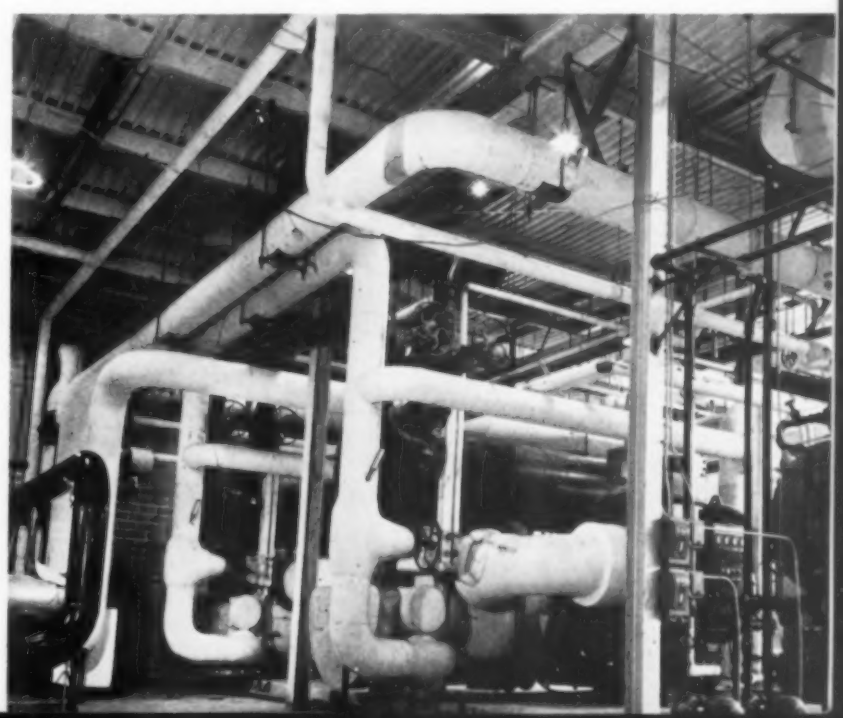
Materials Handling

Approximately 100 tons of steel and iron a day are being moved from machine to machine or from railroad boxcar to storage areas by the use of cranes, monorails or lift trucks. Almost every machine is within easy reach of a jib crane or monorail. Although jib cranes are handier, in some cases they are not practical due to the large valve bodies and parts that have to be moved from machine to machine.

Where the large W-K-M pipeline valves are machined, ten 20 ton Manning, Maxwell, & Moore Load Lifter overhead cranes are available. They can be operated by anyone on the shop floor by the use of push buttons suspended from the overhead crane to the floor by cables. These cranes can travel the whole length of the plant, thus making it possible to carry the valve from the first machine operation to final loading on railroad flat cars. The W-K-M plant has 135 jib cranes (Textool of Houston, Texas, and Manning, Maxwell & Moore Load Lifters) 13 monorails and 10 Manning, Maxwell & Moore bridge cranes.

Hand lifting has been nearly eliminated by the use of electric hand trucks. All small parts are placed on wood pallets and then moved to location for machining, inspection, final assembly or storage.

There is a railway bay into the plant and this track is so inclined that cars can be unloaded at the level of the plant floor. Docks for truck loading and unloading are as convenient.

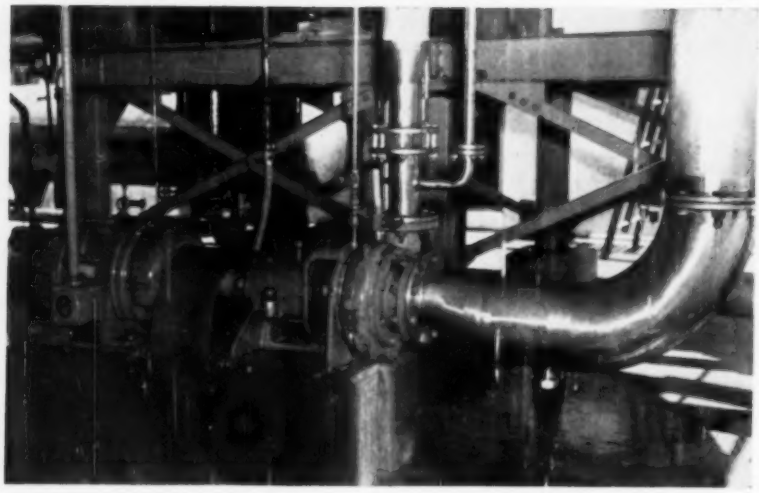


ALL MAJOR air conditioning for the W-K-M installation was supplied by The Trane Company. Cooling equipment includes three CenTraVacs, hermetically sealed compressors operating on the principal of centrifugal force, each having 750 tons of cooling capacity.

Industrial air conditioning for control of precision manufacturing processes has become quite wide spread, but factory air conditioning purely for employee comfort is a newer development.

Citrus, Inc. Doubles Capacity of Haines, Florida Plant

Motors Get Washed — and Take It



This motor drives a stainless steel pump taking concentrated juice from the concentrator for further processing.

CITRUS concentrating plants present many conflicting engineering problems. Processing must be rapid and uninterrupted to assure the fruit's being caught at the height of its flavor. The electrical equipment must withstand continual washing down to achieve the high level of sanitation demanded of all food industries. Yet costly special motor equipment or extensive maintenance must be avoided to keep the final frozen canned concentrate competitively priced.

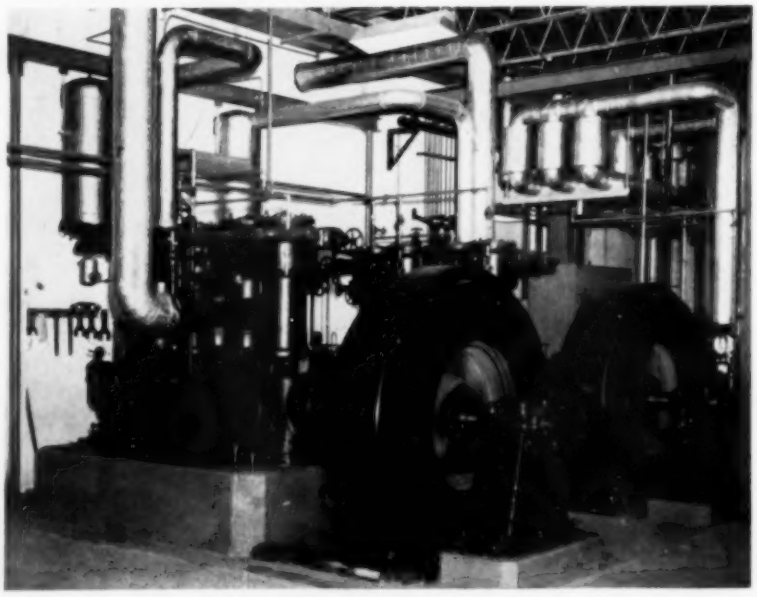
At the new Citrus, Inc. plant, located at Haines, Florida, in the heart of the citrus country, so well did careful planning and advance engineering pay off in trouble-free operation and quality of product during the 1955 first-year processing that production facilities have been doubled for the 1956 season — boosting output from 19,200,000 cans to 38,400,000 cans. Richard Holzcker, the experienced superintendent of Citrus, Inc. responsible not only for the first season's operation but for the organization and erection of the plant, is following the original engineering plans in his expanding program.

At the outset of planning for this year-old plant — one of the very few producing nothing but orange concentrate — it became apparent that one of the major problems in achieving speedy handling, uninterrupted processing and low maintenance, revolved around the necessity for almost continual washing down of all machinery in this plant where most of the equipment was to be motor driven.

Open motors get wet and, though not too much immediate damage is done if they are run continuously, they must each be baked out and reinsulated at the end of each season. On the other hand, totally, enclosed motors tend to collect water from condensation and must be drained periodically. At the end of each season they too must be baked out.

There seemed to be but two alternatives — both costly. Either all the many motors would have

Motors driving the compressors that handle the refrigeration at the plant are equipped with space heaters to protect against condensation. This view shows two 450 horsepower synchronous motors driving compressors.



to be baked out and, with some types, the windings reinsulated at the end of each season — a sizeable recurring maintenance expense — or additional heavy investments made in specially designed motors would be necessary.

Both expenses, however, were avoided by selection of equipment suited to the service. Fairbanks-Morse splash-proof frames and F-M 17 insulation were specified for all motors up through 7½ hp, and space heaters used on larger motors, 10 horsepower and up. During the whole first year of operation, there was only one motor failure and that from overloading a 1½ hp motor.

Fairbanks-Morse motors drive all the compressors handling refrigeration in the plant and all are equipped with space heaters to protect against condensation. Synchronous motors of the engine type drive the four 450 hp compressors; squirrel-cage induction motors drive the seven smaller compressors — two 150 hp, two 125 hp, one 100 hp, one 75 hp, and one 40 hp.

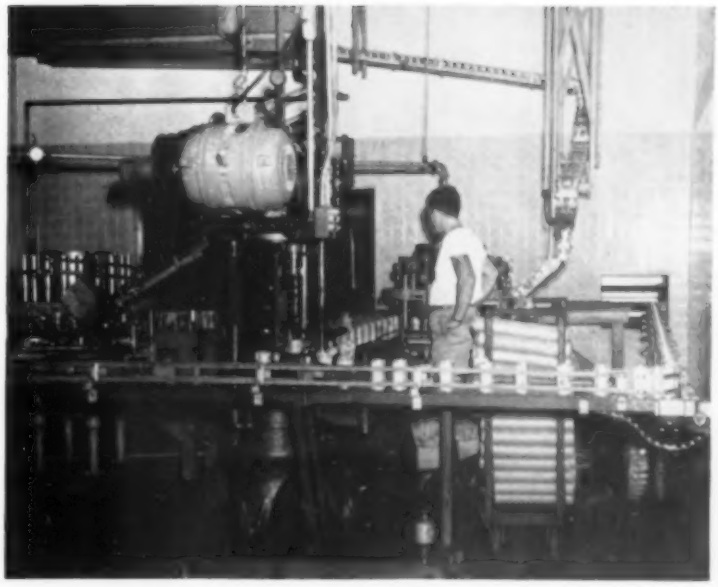
Processing

As the fruit comes in, it is weighed in bulk on truck scales and loaded on conveyors for transfer to storage. From the storage bins, the oranges are again moved by conveyors to extractors where the juice is separated from the fruit.

Literally the whole orange is put to use. While the juice goes one way from the extractors, the pulp is transferred by screw conveyor and truck to a feed mill where it is converted to cattle feed and molasses.

As for the juice, it is first pumped through cooling tanks, then to concentrators where excess water is removed by evaporation. The concentrated juice is next pumped through a pasteurizer. From the pasteurizer the orange concentrate is pumped to filling machines where it is sealed in 6-oz cans. These cans are run through a freezing tunnel. Then they are cased, weighed in pallet lots and either put in cold storage or loaded directly into refrigerated trucks and trains for shipment.

Quality and economy are the end results of the engineering knowledge and ingenuity used in the building of the Citrus, Inc., orange concentrating plant. The concentrate from this plant is being marketed under the labels Stokley Honor Brand, Pictsweet and Bordo Products. Stokley Van Camp, incidentally, is second in size only to General Foods as a processor and packer of frozen foods. The final economy of the operation lies in the processing of Suni-Citrus which turns into feed and molasses the pulp discarded early in the concentrating operation.



After pasteurization, the orange concentrate is pumped to the filling machine (at left in the background). The filled 6 oz. cans then move to the closing machine (center) for sealing. Next step is the freezing tunnel; from thence they either go to cold storage or directly into refrigerated trucks and trains for shipment.

Cable Trough at Scott Paper

(*Starts on Page* 40)

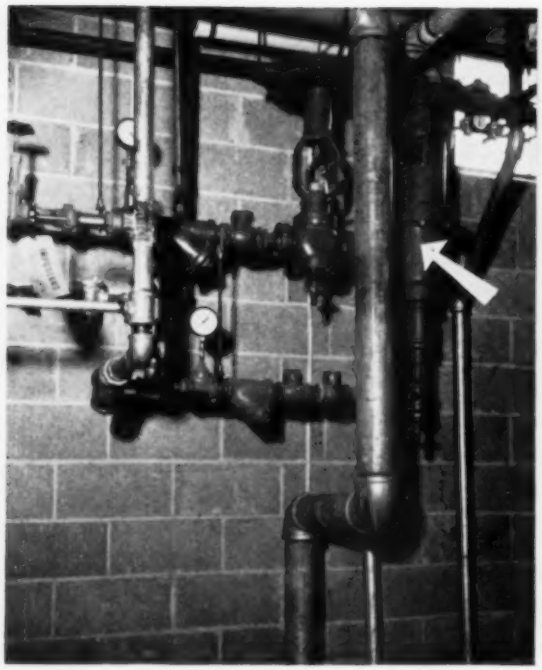
carry as many cables as 16 — 4" conduit. This means a savings of more than a ton of steel in every 40 ft. And since conduit is much heavier, it requires much heavier supports.

With control cables the savings are even greater as the trough can be filled completely without regard for cable current ratings. The same holds true when Instrof supports are used for instrument tubing.

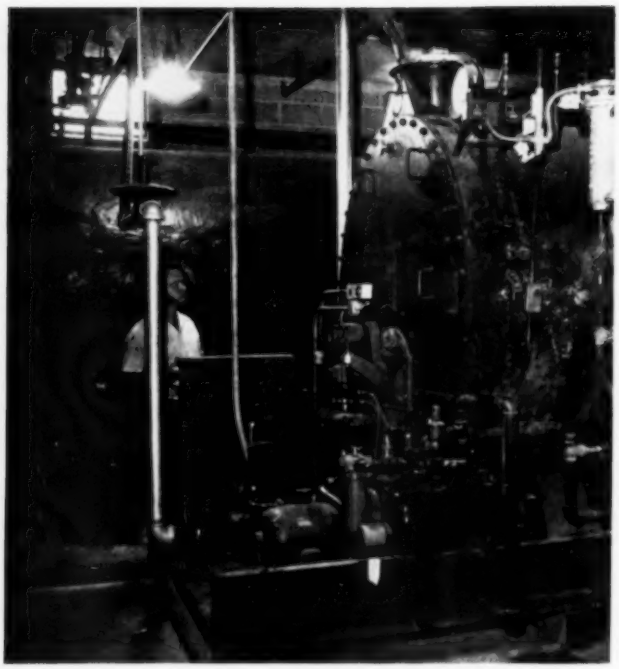
For most runs Scott is able to support the cable trough in the same steel channel supports that hold the light, middle, and heavy piping at 4½ ft intervals. Usually the trough is placed near the top and electrical contractors are urged to complete their work before the mechanical contractors fill the space with pipes. This speeds the job considerably as cable can be laid in the trough with a minimum of confusion and a maximum of working room.

The strength of the cable trough is demonstrated by the fact that mechanics and electricans frequently use it as a platform before the cables are laid, without any injury to the trough.

Normally the cables in the trough are covered only where there is danger of something falling on them, as under walkways, or where they pass through a wall or floor. Having the cables exposed to the air gives an advantage in cable current ratings.



THE PICK INSTANTANEOUS WATER HEATER used on this job (arrow) is Model 6X 50-2 and has a capacity of 80 gpm through 140 F rise.



3600-GALLON VENTED TANK (background) is plastic lined and serves for hot water storage adjacent to the 150 hp B&W boiler (foreground).

Water Heater Cuts Boiler Load

SOVELCO MILLS, INC., Winston-Salem, N. C., was confronted with a problem in selecting the most suitable boiler and heating equipment for dyeing and finishing operations.

Hot Water Needed

Upon investigating requirements for the equipment, it was found that the major load would be from heating water for the dye house. The water was to be heated in the dye machines by live steam, and a 250 hp boiler was needed for the peak loads.

Another Method

Further study and consultation with supplier revealed that boiler capacity could be saved if the shock load on the boiler were eliminated. Also, water heating time could be saved if the water were heated continually in a vented tank instead of directly in the dye machines. Consequently, a 150 hp boiler was found adequate for the job instead of a 250 hp boiler.

Equipment Selected

A Pick Instantaneous Water Heater, Model 6X 50-2, having a capacity of 80 gpm through 140 degree rise, was purchased for the job. Other equipment included one 3600-gallon plastic lined steel tank, one water inlet valve and float control, and one hot water circulating pump having a capacity of 500 gpm at 46 ft head when handling 180 F water. The pump is driven by a 10 hp constant speed motor. The heating equipment operates in conjunction with a 150 hp B&W boiler and was supplied by Heat and Power Equipment Co., Charlotte, N. C.

Operation

The water level in the tank is governed by a float control and all water entering the tank is heated to the desired temperature by the Pick Instantaneous Heater which employs steam as the heating medium.

The hot water tank is vented to atmosphere and acts as an accumulator for sufficient hot water for each cycle of operation. The water heating process is carried on throughout the entire day instead of on a short term basis which would result in short peaks and excessive shock loads on the boiler.

Saves Time Too

This method of heating water also eliminates the time required to heat the water in the dye machines by live steam. Another advantage over the usual storage tank method is the fact that the water temperature does not drop as water is drawn. Also, the shock load on the boiler is less, and there is no need for an ASME inspected and insured pressure vessel with the higher maintenance and greater cost for such equipment.

Stacking Feedwater Stages Saves Space

STACKING individual feedwater heating stages in a common compact tower shell offers economies in construction of power plants that can save $10 to $15 per installed kilowatt of capacity.

The saving is made possible because the incorporation of feedwater heating stages in one unit: (1) simplifies the piping system, (2) reduces the number of engineering drawings, (3) minimizes installation time and cost, and (4) reduces building volume — particularly valuable floor space.

This new approach to the problem of simplifying the installation and operation of both utility and industrial power plants was presented to engineers attending the semiannual meeting of The American Society of Mechanical Engineers. Authors of the paper, H. A. Kuljian, president, and W. J. Fadden, Jr., chief mechanical engineer, The Kuljian Corporation, Philadelphia, described stacked designs for both closed and open heaters.

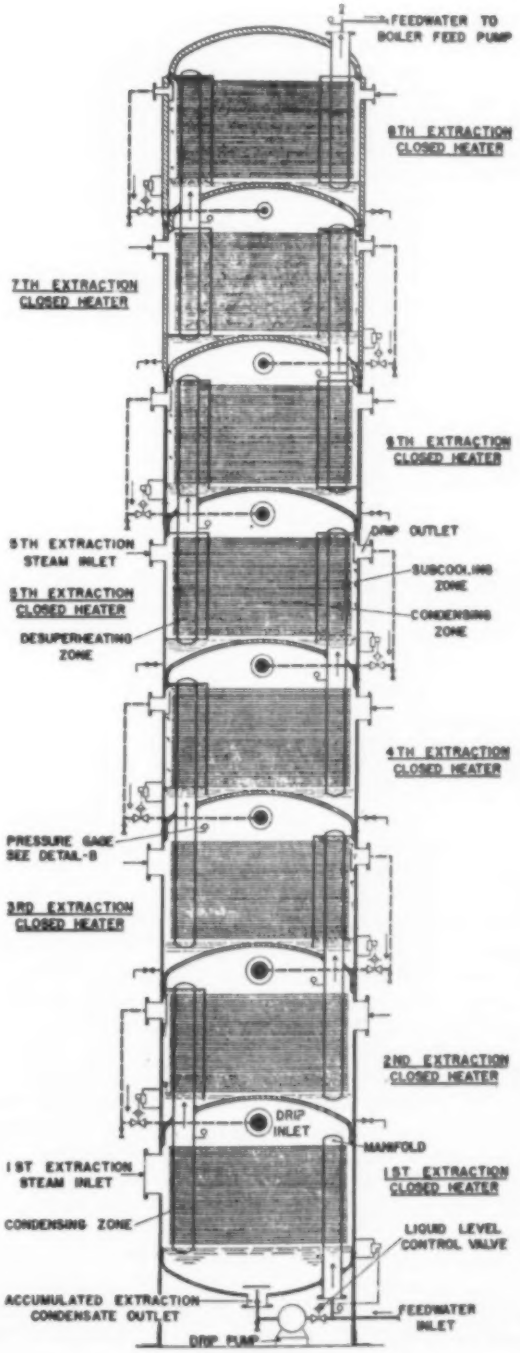
The "K" or closed design consists of a series of shell-and-tube heat exchangers in which the tubes are wound spirally in a horizontal plane. Feedwater, pumped from the condenser hotwell, enters the bottom and passes upward through all stage sections of the tower. Steam, bled from the turbine at the desired points, passes over the tubes in the respective stages.

The "K-F" or open heater combines standard tray-type heaters and a deaerating heater in a vertical tower. In this design, feedwater enters at the top and flows downward through successive stages. This type has a pair of automatically operated receiving and discharge locks between stages.

One lock is steam equalized to the heating stage immediately above and receives water from that stage by gravity flow. The other lock is steam equalized to the next heating stage and discharges water by gravity to that stage. When a lock is emptied and the other is full, a transfer valve operates automatically to interchange the functions of the locks so that the full one discharges to the high-pressure stage and the empty one receives water from the low-pressure stage. Control system for the "K-F" heater maintains a practically steady flow to each heater for a given load on the turbine, thus minimizing fluctuations in the extraction-line pressure.

In both types of heaters, emphasis has been placed on ruggedness of design and simplicity of construction to minimize maintenance problems. Access manholes are provided for easy inspection.

Copies of the paper, No. 56-SA-34, can be obtained at 50 cents each from the Order Dept., ASME, 29 W. 39th St., New York 18, N. Y.



"K" feedwater heater for 150,000-kw turbogenerator, 2000 psig, 1050 F, 1000 F reheat; diameter 10 ft, over-all height 69 ft.

Texas Engineers Testing Faster Operation

Remote Control of Gas Burners

Results of tests—lighting and cutting burners on pressurized boilers by remote control.

By R. O. WILLIAMS
Texas Electric Service Co.
Fort Worth, Texas

LARGE STEAM generating units using gas as a fuel may have as many as twenty-four burners. The time required to light a burner with a conventional gas electric pilot is about one minute per burner. With the sudden loss of all or nearly all load in case of plant disturbance, the time required to cut burners out of service and then cut them back into service after restoration of load, becomes a major factor in successful operation of the unit, especially for boilers involving reheat.

In case of sudden loss of load on a large boiler, the lower limit of firing rate is generally considered to be approximately 30% of maximum with all burners in service.

In case of loss of all or nearly all load on a boiler involving reheat, it becomes highly important to reduce the heat input to the furnace drastically from the maximum, in the shortest time possible, consistent with safe operation. In the case of a boiler with 24 burners this means 20 burners must be cut out of service within seconds after the loss of load. This is almost impossible with the number of operators on duty, without some method of performing the operation by remote control.

With the system developed, the burners can be cut out of service at the rate of one per second if this becomes necessary. The cutting of burners in and out of service can be done by the operator in the control room by simply turning one control switch for each burner.

The system consists essentially of remote controlled motor operators on both gas valve and air register for each burner. The opening cycle is supervised by electronic equipment that protects against unsafe conditions that might develop.

After each burner has been placed in service the electronic equipment protection can be left in service or taken out as desired. By returning the master switch to the "neutral" position, the burner is left in service but the electronic protection is out of service. When it becomes desirable to cut a burner out of service the master switch is turned to the "close" position and the operation is remote manual closing of gas valve and air register.

Main Control Station

The Main Control for each burner includes the following:

1. Master Control Switch with 3 Positions: Open, Neutral, Closed
2. Register Control Switch for Adjusting Position of Register after Cycle is Complete
3. Register Position Indicator
4. Pilot Light Indicates Pilot Light Lighted & Proved
5. Pilot Light Indicates Main Flame Lighted & Proved
6. Pilot Pilot Indicates Position of Gas Valve Open or Closed.

Local Control Station

A local control station is provided at each burner so that opening and closing cycles can be supervised at the burner location. This is valuable in initial operation. Each burner is provided with the following:

(1) Motor control switch to take precedence over main control
(2) Control switch to change operation of pilot to manual
(3) Push button switch to ignite pilot
(4) Pilot light to indicate when pilot gas valve is open.

The local control station allows the gas electric pilot to be used for lighting when oil is burned in the main burner.

When natural gas is not available for the pilot, propane can be used. The pilot and main flame are proved by means of well known relays that have been in wide use for several years. The pilot is proved by the conductivity of the flame as the sensing means. The main flame is proved by means of an electric eye that is sensitive to the blue end of the spectrum. The flame from the main burner is blue for a distance of 2 ft from the gas tip. Beyond this point it quickly turns to orange and red.

The eye is not sensitive to the red end of the spectrum. In this way the eye differentiates between the flame of the burner on which it is mounted and the flame from the other burners.

The eye is sighted along the axis parallel with, and about 1 ft from the center line of the main burner. The eye is located 120 degrees from the pilot so as to prevent the eye from picking up the pilot flame. The eye is sighted toward the back wall of the furnace where no burners are located.

There is little disturbance to furnace draft or fuel-air ratio when burners are cut in and out of service.

Opening Cycle

(1) Gas valve and register must be closed before opening cycle will start
(2) Gas tube on main burner must be in firing position before opening cycle will start
(3) There must be 5.0 psi gas

pressure or more on burner header before opening cycle will start

(4) The electronic relays on both pilot and main flame must show no flame before opening cycle will start

(5) When conditions 1, 2, 3 and 4 have been satisfied the gas and spark are applied to pilot automatically

(6) Pilot must be lighted and proved safe before gas valve on main burner will start to open

(7) The main flame must be proved safe within approximately 4 seconds after gas pressure is established on main burner or operation is stopped and reversed automatically

(8) When the main burner is proved to be lighted by the electronic eye, then the gas valve and register will complete the opening cycle

(9) Should the gas valve or air register fail to open completely within 4 seconds after gas pressure is established on main burner then operation is reversed

(10) In case pilot or main flame fail while master switch is in open position, then gas valve and register will be closed

(11) If either of electronic safety relays fail during opening cycle the gas valve and register will close

(12) There is no re-cycling. Once there has been a break in control circuit, the system closes the gas valve and air register and locks closed. The opening cycle can only be started again by returning the master switch to "neutral" position and waiting 2 seconds for electronic relays to return to normal

(13) The automatic opening cycle can be interrupted any time by the operator turning master switch to "neutral" position.

Control of superheat by cutting burners by this method, and eventually doing away with shunt and series dampers is a possible outcome of additional experimenting with the above setup.

————END————

Atomic Energy Digest

BY JOHN F. LEE
Professor of Mechanical Engineering
North Carolina State College
Raleigh, North Carolina

PROGRESS in the United States toward the peaceful applications of atomic energy has been subjected to a rash of criticism lately. Some of this criticism is, no doubt, justifiable in terms of world politics. However, it is only natural that a fuel-rich country like the United States cannot reasonably be expected to match the same desperate activity in the atomic energy field which occurs in fuel-impoverished nations. Nevertheless, the fact still remains that the United States is making a creditable contribution which is actually spectacular when viewed in terms of our own energy economy. Whether this contribution is sufficiently strong to maintain our world leadership in atomic energy is another question which cannot be answered objectively at this time.

Foods Keep Flavor

One of the serious disadvantages in preserving foods by radiation sterilization has been an undesirable change in flavor, color and odor. Research conducted at Massachusetts Institute of Technology uncovered new methods of irradiation which eliminates this disadvantage.

According to Dr. Bernard E. Proctor, who directed the research, the new method is based on the fact that certain vitamins provide a protective influence for other vitamins when they are subjected to radiation together. As a result, changes in the food are minimized or are prevented entirely.

Among the foods successfully irradiated are meat, poultry, bacon, sausage, fresh pork, liver, hamburger, fish, shellfish, cereals, green beans, asparagus, and spinach. Conscientious objectors have volunteered to test the foods in daily consumption at the Army's Fitzsimons Hospital and the tests conducted thus far are very encouraging. Dairy products, previously thought unsuitable for radiation sterilization, now offer good promise of success.

Three Westinghouse scientists have developed an irradiation technique which can produce in two seconds better rubber than conventional vulcanization methods can yield in several hours. High energy electrons bombarding silicone gum convert it to silicone rubber almost instantly. In conventional methods chemicals must be added which remain in the vulcanized rubber and spoil some of its desirable properties. The electrons simply force the silicone molecules into new patterns and the effect of vulcanization is achieved.

Profits

Financial experts are taking a good look at the spawning atomic industry and what they see looks rosy indeed. At the annual meeting of the National Federation of Financial Analysts Societies the convention was warned that scientific progress is so swift that if private capital does not keep pace, by providing the necessary funds, the Federal Government will be forced to do so.

Paul B. Wishort, president of Minneapolis-Honeywell Regulator Company, said that more than half of all new plant construction is connected with the need to cut costs by more efficient and automatic production methods. He said that industry has gone beyond

the mere use of "recording and indicating" instruments and is now experiencing tremendous expansion of automatic control and mechanization by which man extends himself beyond his own limitations.

William O. Faxon, president of Tracerlab, Inc., said that atomic energy applications in the mechanized industries will produce results which will be almost miraculous. He pointed out that developments are so rapid that even the present $50,000,000 a year spent on atomic research in private industry is inadequate to meet the burgeoning needs.

At another meeting held in Brooklyn, General Walter Bedell Smith, vice chairman of the board of American Machine and Foundry Company, warned that our present supplies of conventional fuels will be depleted to the point of low-grade reserves by 1975. He cited the need for all industrial organizations to explore the possibilities of atomic energy now if they expect to maintain a competitive position in the years to come.

Power Plant Safety

At a recent meeting of stockholders of the Consolidated Edison Company of New York the management was queried about the safety of the company's proposed atomic power plant. Mr. Searing, chairman of the board, stated that the danger of atomic power plants is grossly exaggerated in the public's mind. He emphasized the fact that a nuclear reactor cannot explode like a bomb. Except for possible radiation damage the danger is no greater than that inherent in any conventional steam power plant.

Some concept of the possible damage in the "worst possible" kind of disaster has been disclosed by Dr. Willard F. Libby of the Atomic Energy Commission. According to Dr. Libby, the breakdown of a 100,000 kw reactor would cause $200,000,000 in property damage and twenty to fifty deaths in a thickly populated area. Presumably, Dr. Libby's estimate of property damage includes the total destruction of the power plant itself. However, it was emphasized by other AEC experts that the chance of a reactor getting out of control is extremely remote.

One of the critical problems involved in the safety of nuclear power plants is the matter of insurability. Private insurance firms have offered coverage up to $65,000,000 for each plant. Congress is now considering the authorization of a $500,000,000 Federal atomic accident insurance program to encourage the construction of nuclear power plants by private industry. The program will be administered by the AEC.

Lag Criticized

Despite the fact that the first nuclear power plant at Shippingport, Pennsylvania, will go into operation next summer there is considerable agitation in Washington for a "crash" program.

The recent prediction made in Washington by Sir Edwin Plowden of Britain's Atomic Energy Authority, that his country will pass the U. S. in atomic power, has caused some concern. The Russian announcement that five new atomic power plants, ranging between 400,000 and 600,000 kw each, would be in operation in 1960 has caused some panic among those concerned with international standing in the atomic energy field.

The culmination of dissatisfaction with U. S. progress appeared in the form of a bill, introduced in Congress by Senator Albert Gore of Tennessee, which would authorize a government sponsored "crash" program to recoup our leadership.

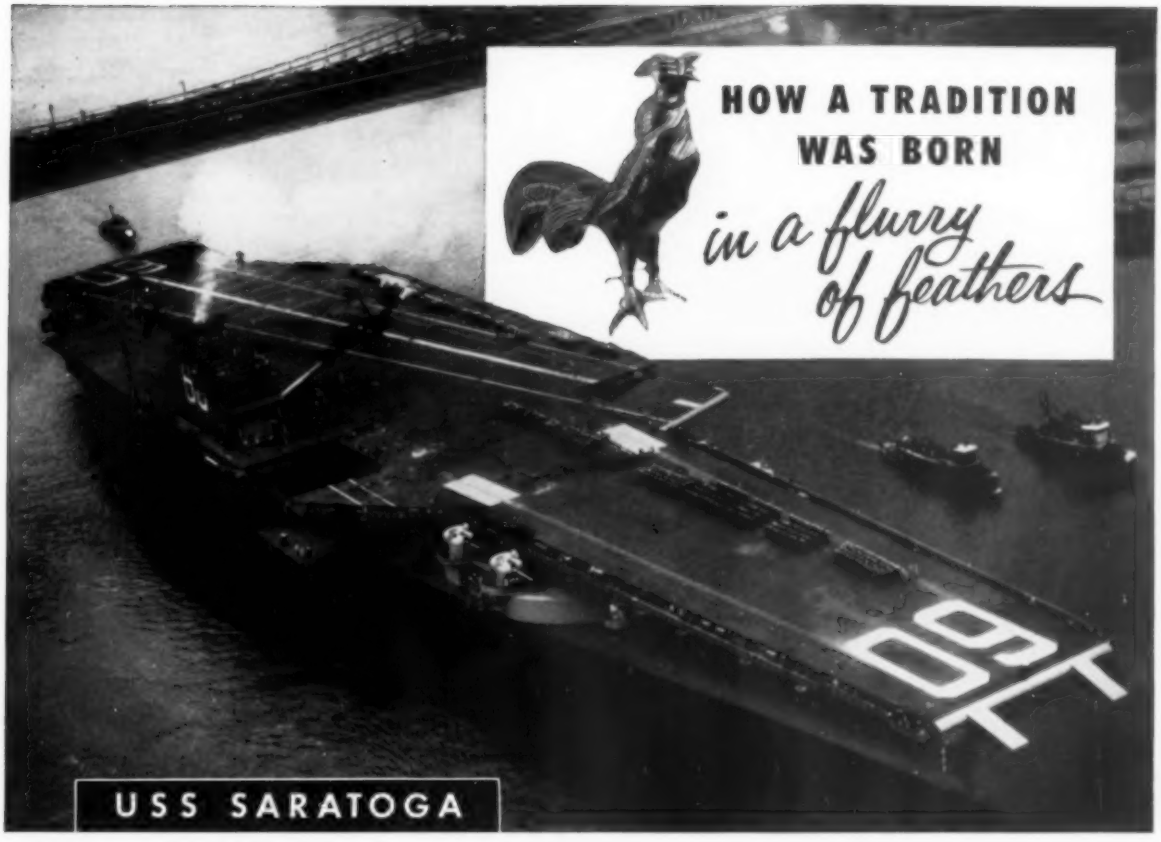
Private industry, however, is not at all dissatisfied with our progress thus far and this viewpoint is ably supported by no less an authority than Lewis L. Strauss of the AEC. Strauss stated categorically that "we are not behind any country."

Mr. Harllee Branch, Jr., president of the Edison Electric Institute and of Georgia Power Company, who admits that he is bullish about nuclear power, summed up the case for U. S. progress very well indeed. He pointed out that it has been only two years since the bars were let down for the construction of nuclear power plants by private utilities. In this period of time, according to Mr. Branch, a total of forty-four private companies have planned the building of seven large and two medium power plants having a capacity in excess of 1,100,000 kw and involving more than $300,000,000 of private capital. Furthermore, more than fifty additional companies are actively engaged in planning or study programs.

The accompanying tabulation figures released by the AEC tells at a glance where the U. S. stands in the atomic power field.

These figures, released by the AEC, tell at a glance where the U. S. stands in the atomic power field.

Plant	Electrical Capacity	First Cost Per Kw
Consolidated Edison	250,000	$ 220
Commonwealth Edison	180,000	280
Yankee Atomic Electric Co.	134,000	257
Power Reactor Development Co. (Detroit Edison et al)	100,000	540
Consumers Public Power District	75,000	364
Shippingport Pressurized Water Reactor (AEC)	60,000	792
City of Orlando, Fla.	25,000	512
Rural Cooperative Power Association	22,000	281
City of Holyoke, Mass.	15,000	429
City of Piqua, Ohio	12,500	424
Wolverine Electric Cooperative	10,000	357
Chugach Electric Association	10,000	735
Sodium Reactor Experiment (AEC)	7,500	708
Experimental Boiling Water Reactor (AEC)	5,000	720
Homogeneous Reactor Experiment (AEC)	4,000	450
University of Florida	2,000	800
Army Package Power Reactor (AEC)	2,000	960



The symbol, and the spirit, of the fighting gamecock lives on with the commissioning of the powerful aircraft carrier, *USS Saratoga*.

The incident which gave birth to this 142 year old Navy tradition took place on the decks of the first *Saratoga* as she closed for action against four men-o'-war in 1812. In the opening minutes of the engagement an enemy ball landed on deck – crashing into a coop containing a gamecock brought aboard by a sailor.

With a flurry of feathers, the startled bird flew to the rail and, as if expressing his personal indignation, crowed lustily and defiantly. Taking this as an omen of good luck, the outnumbered and outgunned American ship entered the battle with new courage and completely won the day.

The Navy's newest aircraft carrier is the fourth ship to bear the name *Saratoga* and adopt its fighting symbol. As aboard its sister aircraft carriers, the USS Forrestal, USS Independence*, and USS Ranger*, Walworth Valves and Fittings are installed. We are proud of the many contributions that our products and engineering skills have made to these outstanding vessels.

Walworth products installed aboard these ships include Pressure-Seal Cast Steel Gate, Globe, and Angle Valves, Fabricated Cast Steel Manifold Valves, Cast Steel Y-Globe and Angle Valves, Bronze Gate, Globe, Angle, and Check Valves and thousands of Walworth pipe fittings including Walseal* Fittings, Flanges, and Unions.

*Now under construction.

WALWORTH

60 East 42nd Street, New York 17, New York

SUBSIDIARIES: ALLOY STEEL PRODUCTS CO. CONOFLOW CORPORATION M & H VALVE & FITTINGS CO. SOUTHWEST FABRICATING & WELDING CO., INC. WALWORTH COMPANY OF CANADA, LTD.

Boilers Require Chemical Boil-Out When Contaminated With Oil

Oil Removal from Heating Surfaces

By J. J. MAGUIRE
Director Technical Division
W. H. & L. D. Betz, Philadelphia, Pa.

Courtesy Permutit

Ruptured generating tube resulting from oil and scale.

SOME of the most serious troubles encountered in boiler operation such as tube warping and rupture, bagging of sheets, localized overheating and burning of metal, foaming, priming, and scale formation can be traced to oil in the boiler water.

Oil Removing Equipment

Since there is no internal chemical treatment for oil in a boiler water, it must be prevented from entering the boiler. Equipment for removing oil may be divided into two types, dependent upon the field of application. Baffle or centrifugal type separators can be used for the removal of oil from steam. Absorbents, filters and chemical coagulation can be employed for the removal of oil from liquid condensate.

In baffle type separators condensed moisture and oil in saturated steam are thrown out on the baffle and drain down into the reservoir of the separator from which they are removed. But neither mechanical separators of this type, nor the receiver and purifier types, can be employed to remove oil from superheated steam or liquid condensate.

When oil is present in condensate as a mechanical mixture, direct filtration may be employed for removal. The oil bearing condensate is passed through filters, using some coarse material such as loofa sponges, burlap, terry cloth, coke or excelsior for the filter medium.

When oil is emulsified or dispersed through the condensate, chemical coagulation and filtration are required for removal. Aluminum and iron salts are employed to coagulate the oil particles while caustic soda or soda ash is fed to produce the floc of aluminum hydroxide or ferric hydroxide. The oil is then removed by a conventional pressure type filter.

Several conditions determine the applicability of any particular system for the removal of oil from steam or condensate. The type and quantity of oil to be removed must be taken into consideration together with the degree of purity desired in the final treated water and the quantity of water to be treated.

Cleaning New Boilers

Before a new boiler is placed on line, it should be cleaned thoroughly. Grease, oil, and similar protective coatings applied by the manufacturer as well as tube expander lubricants used during erection should be removed from the boiler surfaces. Failure to clean grease and oil from the boiler heating surfaces prior to operation may lead to foaming of the boiler water. These foreign substances may also be incorporated in and added to the bulk of the sludge deposits, interfering with heat transfer.

Removal of grease and oil from the heating surfaces of new boilers is accomplished by chemical boil-out. It is frequently desirable also to boil-out steam generating units at regular intervals where oil contamination of the boiler feedwater has occurred.

In years past, it was customary to employ soda ash and caustic soda for boil-out purposes. Due to the alkaline nature of these materials, a fair degree of success was usually obtained, particularly where phosphate was incorporated as became later practice. Many cases of failure to secure good cleaning of the boiler surfaces, however, led to the development of more effective materials. The recent development of the newer synthetic detergents provides more

THE RIGHT STEAM TRAP FOR LIGHT CONDENSATE LOADS

YARWAY 20-A IMPULSE STEAM TRAP

● Successful companion to the standard Series 60 YARWAY Impulse Steam Trap, the ½" No. 20-A is right and recommended for *light load* applications in:

REFINERIES, CHEMICAL AND PROCESSING PLANTS on steam tracer lines, meter boxes, steam mains, separators, small dryers, pipe coils, small unit heaters, etc.

POWER PLANTS on headers, fuel oil preheaters, compressed air lines, small steam jacketed fire pumps, etc.

HOSPITALS, SCHOOLS, HOTELS AND INSTITUTIONS on autoclaves, sterilizers, steam tables, washers, small pressure cookers, steam mains, etc.

LAUNDRIES on small presses, puff irons, sock forms, drying cabinets, starch cookers, steam mains, etc.

The 20-A has all the YARWAY Impulse Trap features such as small size, stainless steel body and working parts, low cost, non-freezing—and immediate availability through 270 local Industrial Distributors.

Write for Bulletin T-1739-X.

YARNALL-WARING COMPANY
Home Office: 116 Mermaid Avenue, Philadelphia 18, Pa.
Southern Representative:
ROGER A. MARTIN, Bona Allen Building, Atlanta 3, Ga.

There's a Yarway Impulse Trap for every trapping need

SERIES 60 AND 120
For all *normal* trap requirements, pressures to 400 and 600 psi.

½" No. 20-A
For *light loads* on tracer lines, steam mains, small presses, etc.

SERIES 40
For *heavy loads* requiring extra high capacity steam traps.

INTEGRAL-STRAINER HIGH PRESSURE TRAP

For *high pressures, high temperatures.* (Flanged or welding connections.)

YARWAY **IMPULSE® STEAM TRAP**

OVER 1,000,000 YARWAY IMPULSE STEAM TRAPS USED

effective agents than were available previously for this work.

Inorganic Boil-Out Agents

Alkaline chemicals such as soda ash and caustic soda possess the ability to saponify compounding agents in oil to form a soap and their effectiveness is due in a large measure to this property. However, many modern oils used in lubrication possess a straight petroleum base which will not hydrolyze in the presence of alkali and will not saponify to form a soap. Soda ash and caustic soda are relatively ineffective on such oils.

Sodium silicate is well known for its detergent action and the addition of this material to a boil-out mixture will improve its effectiveness. However, if the boil-out mixture is not completely removed by thorough draining and flushing, undesirably high silica concentrations may be present when the boiler is placed on line.

In fact, in some cases where sodium silicate has been used in the boil-out process, operation for several days at a high blowdown rate has been necessary to reduce the silica concentration of the boiler water to tolerable values. Particularly in high pressure units where silica vaporization and turbine blade deposits are a primary problem, it may be well to avoid sodium silicate in the boil-out process.

The incorporation of phosphate in a boil-out mixture also will improve its cleansing properties. Both trisodium phosphate and disodium phosphate, accompanied by either soda ash or caustic soda, have been used for this purpose. Experience to date, however, has indicated that all purely inorganic boil-out preparations leave something to be desired insofar as grease and oil removal are concerned. It may be necessary to repeat the boil-out process a second or third time to obtain reasonably satisfactory results.

Another problem introduced by the use of alkaline boil-out chemicals is the possibility of developing inter-crystalline cracking (caustic metal embrittlement) during even the short boil-out period. The alkaline concentrations developed in the boiler water are quite high in comparison to normal standards for boiler water operations. Alkalinities of 3,000 ppm to 6,000 ppm in the boiler water during boil-out are not uncommon depending on the chemicals used.

Such high alkalinities, without an embrittlement inhibitor, have been suspected as playing a part in the embrittlement later found after a short operating period. It is the safer procedure, therefore, if highly alkaline boil-out chemicals are to be used to also add to the boiler water an adequate concentration of an embrittlement inhibitor. Sodium nitrate is a preferred agent for this purpose.

Experience has indicated that of the various inorganic boil-out mixtures employed, the best success has been achieved where caustic soda, disodium phosphate and sodium nitrate have been used. The recommended quantities are three pounds of caustic soda, three pounds of anhydrous disodium phosphate and one pound sodium nitrate for each 1,000 pounds (120 gallons) of water required to fill the boiler to the operating level. These chemicals should be first dissolved in water and then the chemical solution added to the boiler after filling.

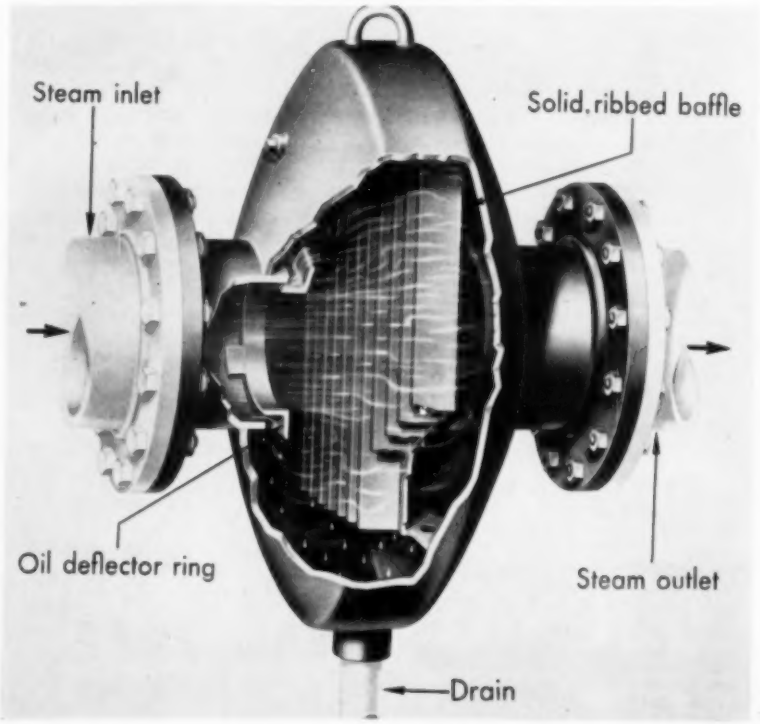
Synthetic Detergents

For the most effective removal of oil from the boiler metal surfaces, it is necessary to incorporate a detergent into the boil-out mixture. Most alkaline chemicals have detergent properties which can be made more effective by the presence of synthetic detergents and wetting agents. These synthetics increase the "wetting power" of the water by reducing the surface tension, and thereby reduce the adherent characteristics of oil to a minimum. The combination of an effective synthetic detergent along with inorganic alkaline chemicals will therefore break down the oil-sludge bond and remove oil from the metal surface.

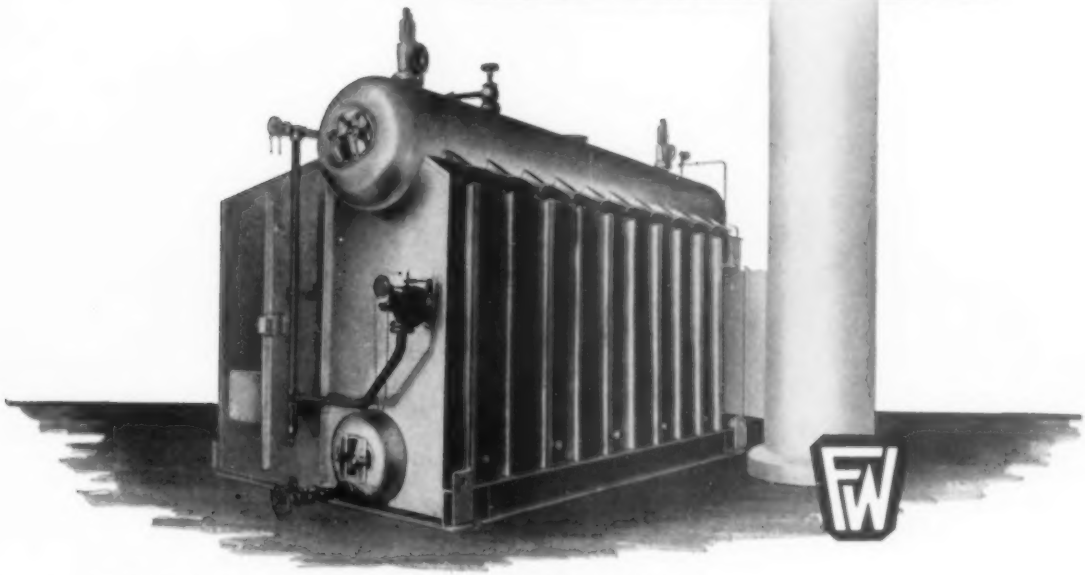
After the oil is removed, it is necessary also to keep it dispersed throughout the water by the use of an emulsifying agent so that the oil can be readily removed when the boiler is drained. Inorganic chemicals alone do not have this property, and therefore allow the

(*Continued on Page 64*)

Baffle type oil separator.



CUT STEAM-PLANT INSTALLATION AND MAINTENANCE COSTS

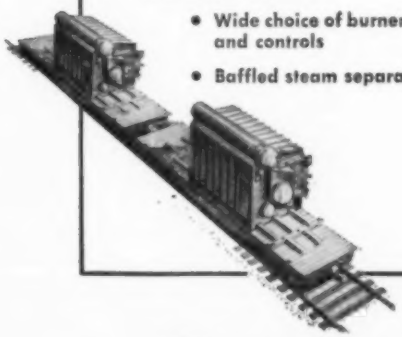


. . . with the NEW Foster Wheeler

PACKAGED STEAM GENERATOR

CONSTRUCTION FEATURES

- 36" steam drum and 24" water drum
- Staggered boiler tube arrangements
- Closely spaced waterwall tubes
- Water cooled target wall
- No headers—Low circulation loss
- Light, highly efficient refractory and insulation
- Wide choice of burners and controls
- Baffled steam separator



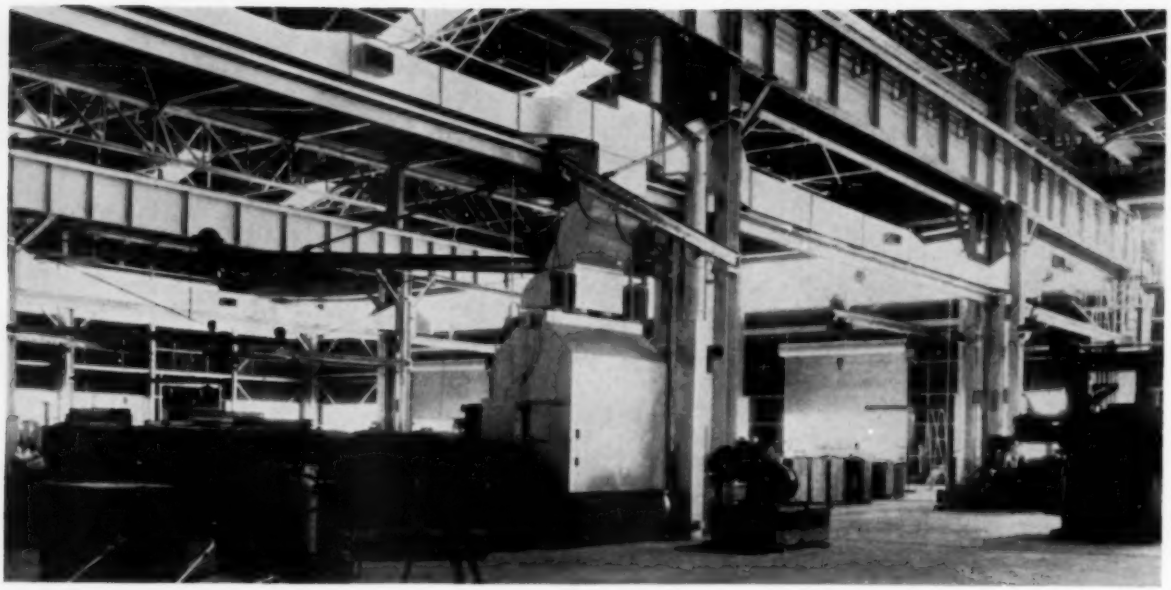
HERE IS a compact, space-saving steam generator that is completely factory assembled and shipped to you ready to set on a simple, low-cost foundation—ready for your fuel, steam and electric connections. There is only one outlet to the stack, and this has a simple, flanged connection as shown above. Extremely compact design permits access to boiler rooms through average building openings.

Low refractory maintenance is assured by the use of closely-spaced waterwall tubes and water-cooled target wall. The boiler interior is easily accessible for cleaning through a large access door in the rear furnace wall, and dusting ports are provided along the boiler bank side at intervals of not more than 42". Soot blowers can be furnished as original equipment or installed later.

Available in capacities from 10,000 to 50,000 lb/hr, the *new* FW Packaged Steam Generator represents the last word in modern steam plant design. For complete details, send for Bulletin PG-55-3. *Foster Wheeler Corporation, 165 Broadway, New York 6, N.Y.*

FOSTER WHEELER

NEW YORK • LONDON • PARIS • ST. CATHARINES, ONT.



Six Dravo heaters (as shown in center of photo) were installed in the Garland, Texas, fabricating plant and warehouse of the Oil Well Supply Division of United States Steel Corporation.

Garland, Texas, Plant Maintains Even Temperature

Large Area Served by Each Space Heater

IT GETS CHILLY at times in the South, and a major problem in many Southern industries is comfort heating when it is needed, and rapid dissipation of the heat at its source when the sun takes over.

The Oil Well Supply Division of United States Steel Corporation has an effective and economical heating installation to handle this situation at its recently expanded Garland, Texas, fabricating plant and warehouse serving the petroleum industry in that area.

Six gas-fired "Counterflo" warm air space heaters, produced by Dravo Corporation, placed at strategic spots in the 165,000 sq ft structure provide a uniform working temperature of 70 degrees. The heaters, each with a capacity of 2,000,000 Btu/hr, are thermostatically-controlled to cut off warm air as soon as the 70-degree level is reached.

During part of the year the temperature drops to freezing and below in the early morning hours. But as the sun rises and solar heat builds up, the outdoor temperature climbs to 75 and higher. It is on such days that the real effectiveness of the forced air space heating principle proves itself.

Because the heaters require no steam or hot water lines and the outer casing of the equipment consists of two sheets of metal with an effective insulating air space between, there is very little override of heat after the heaters cut out. Conversely, there is little lag in heat delivery when the units start up to dispel the morning chill. Transfer of heat to air stream from the stainless steel combustion chamber in each unit is almost instantaneous.

Another factor taken into consideration was the minimum capital expenditure required for the installation. Need for a boiler house and hot water or steam distribution system was eliminated. In addition, fuel costs are low because the heaters can be independently operated to provide heat only in those areas where it is required.

The heaters are installed in an upright position between bays of the plant. Two of the four air-throw nozzles on each heater discharge into 50 ft lengths of ductwork to distribute warm air to remote sections of the huge structure.

Thermostats are mounted inside the return air grilles at the base of each heater and control both the fan motor and the gas burner.

Effective air throw of each unit is approximately 150 feet, making it possible to heat a large area with one unit. Besides the relatively short ductwork, the only connections required for installation of the units were fuel lines, exhaust stacks to the roof and electric power line to operate the 3-phase, 60-cycle motors.

ANDERSON HAS THE ANSWER TO YOUR WATER PROBLEMS

In the complete line of ANCO Water-Treating Chemicals there's a product formulated to combat virtually any industrial water problem—and do it cheaper and more effectively.

BRAXON AND FLAKO

Liquid and dry boiler feedwater treatments that prevent and remove scale in many types of water. Stop foaming and carry-over.

COOLEX

Prevents scale and corrosion in condenser cooling water systems, air washers, chilled and hot-water circulating systems.

ALKASTEEM

Protects steam and condensate lines against corrosion caused by the breakdown of bicarbonates in the boiler.

SLUDGIT

A liquid fuel oil treatment that dissolves and prevents sludge in storage tanks.

REMOX

Prevents corrosion caused by oxygen. Eliminates need for oxygen tests.

KLEERFLO

A water-clear liquid formula that prevents scale and corrosion in hot-water systems.

RUSTEX

Prevents scale and corrosion in humidifying systems.

FREE ENGINEERING AND ANALYSIS SERVICE

The Anderson Service Engineer in your area will be glad to study your particular water problems and make recommendations. He will have water samples analyzed in our laboratories shortly after beginning treatment and make any adjustments in the treatment that may be necessary. Similar analyses will continue at regular intervals. There is no charge for this valuable service.

Write, Wire or Phone Today

SPECIALISTS IN MAKING WATER BEHAVE

Anderson Chemical Company, INC.

Box 1424 • MACON, GEORGIA • Phone 5-0466

HELPING the *MAN-IN-THE-PLANT*

Plastic Pumps Meet Corrosive Conditions in Alabama Rayon Plant

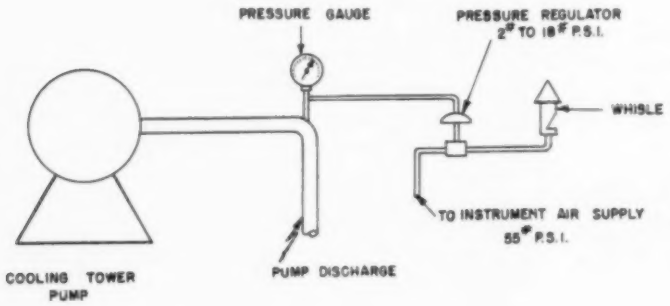
THE CORROSION problem resulting from handling solutions of H_2SO_4, ranging from .5% to 15% at temperatures up to 195 F, led Courtaulds (Alabama) Inc. to investigate the possibility of replacing special alloy pumps with plastic pumps.

Over the past two years, 5 types of special alloy pumps have been replaced with Mission Manufacturing Company's Type-D Haveg 41 pumps in the above services with very good results. In some cases, the Mission Haveg pumps have been operating satisfactorily for two years where the previous special alloy pump life was only about six months.

The fluid end of the pumps are solid plastic, not simply lined or coated. All parts coming in contact with the fluid are plastic. The pumps are equipped with mechanical seals and casings are reinforced on the outside with steel plates for greater stability and higher heads.

At present, we have approximately 60 Mission Type-D Haveg 41 pumps installed, pumping from 90 to 250 gpm of corrosive liquors. Although there are always some minor problems to iron out, these pumps have aided greatly in solving our overall corrosive pumping problems, and we are continuing to specify them where critical temperature and corrosive conditions exist.

By R. W. LEINS, Chief Engineer, Courtaulds (Alabama) Inc., LeMoyne, Ala.



Warning Device for Cooling Tower Water Pumps

THE ILLUSTRATED warning device eliminates hourly checking of pumps to determine if they are operating. Prompt action may be taken by the operator to start standby pumps because he will know immediately when a pump fails.

A pressure closed regulator with 2 to 18 psi pressure is installed on a line tied into the pump discharge line to the cooling tower. This regulator controls air from the instrument air pressure to the warning whistle. When the cooling tower pump stops, the decreased pressure on the discharge line permits the regulator to open, which in turn releases air from the air supply, which sounds the warning whistle.

By HERBERT O. PICKENS, Engineer, Heyser Gas Plant, Humble Oil & Refining Co., Texas.

Atmospheric Pollution Bulletin by A.S.M.E.

BETTER understanding of the smog that now chokes many American cities may result from a booklet published recently by The American Society of Mechanical Engineers. It will help even the smallest units of industry and government to obtain equipment suitable for the study of their particular smog problems.

The publications, believed to be the most complete of its kind ever assembled, lists hundreds of devices useful in studying air pollution, together with the names and addresses of manufacturers who can supply them. Items covered range from simple filter papers to electrostatic precipitators.

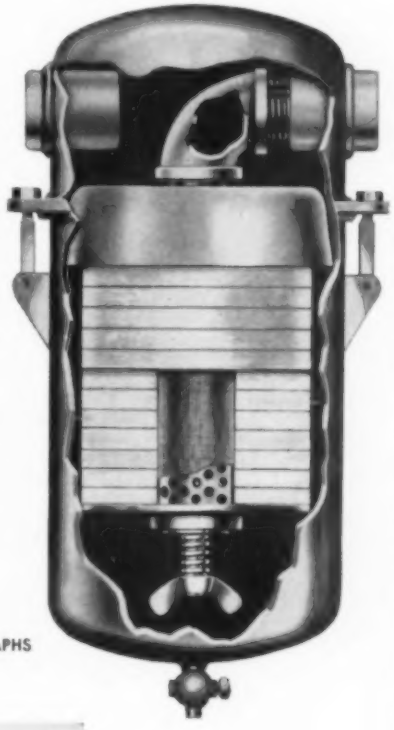
Frederick S. Mallette, Executive Secretary of the ASME Committee on Air Pollution Controls, noted that no single source had previously existed where engineers could find adequate information on available equipment. Eight months

(*Continued on Page 62*)

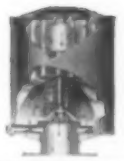
MOISTURE FROM RUINING YOUR AIR-OPERATED EQUIPMENT

GET STAYNEW ABSORPTION FILTERS

Moisture, oil, and foreign matter can raise havoc in your compressed air lines. That's why Staynew Absorption Filters were designed. Thousands of manufacturers from coast to coast have eliminated process shutdowns and are now saving thousands of dollars annually since installing Staynew Absorption Filters. If you have air-operated equipment or processes you owe it to yourself to get all the facts on Staynew Absorption Filters.



Model AAPHS



INTAKE FILTERS

LIQUID FILTERS

PIPE LINE FILTERS

ELECTRO-STAYNEW PRECIPITATOR

AUTOMATIC AIR FILTERS

PANEL FILTERS

SPECIAL FILTERS

DOLLINGER PROTECTOMOTOR STAYNEW FILTERS

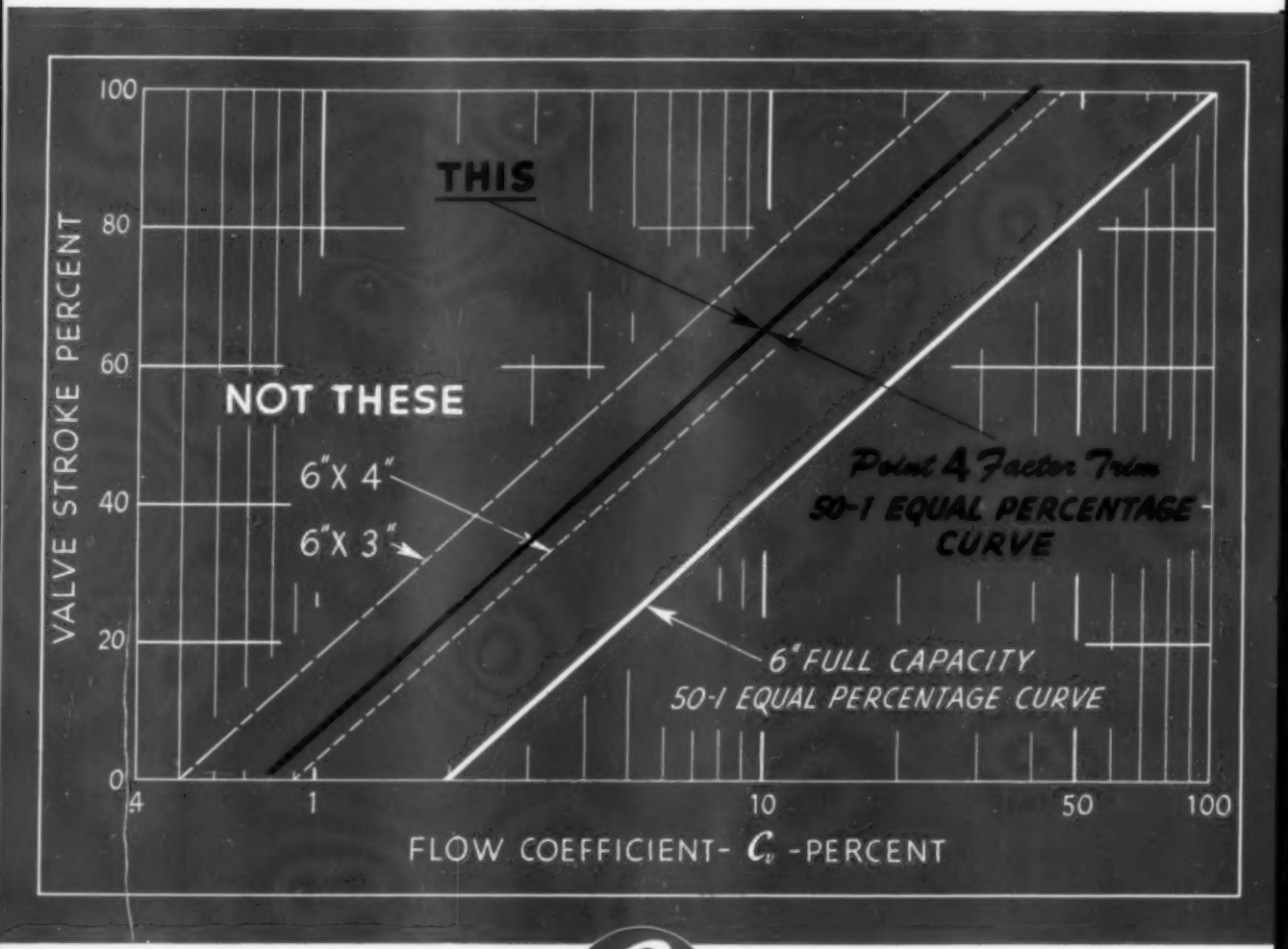
DOLLINGER CORPORATION

ALL TYPES OF FILTERS FOR EVERY INDUSTRIAL NEED

Write for Bulletin 200. Tell us about your special filtration problems. We'll be glad to help. Dollinger Corporation, Dept. 40, Centre Park, Rochester 3, N. Y.

LIQUID FILTERS • PIPE LINE FILTERS • INTAKE FILTERS • HYDRAULIC FILTERS
ELECTROSTATIC FILTERS • DRY PANEL FILTERS • SPECIAL DESIGN FILTERS
VISCOUS PANEL FILTERS • LOW PRESSURE FILTERS • HIGH PRESSURE FILTERS
AUTOMATIC VENTILATION FILTERS • NATURAL GAS FILTERS • SILENCER FILTERS

One Size...



A HIGH Quality Coefficient C_Q PRODUCT

Point 4 Factor Trim

is the answer to those few types of applications where reduced capacity trim is required. It is available in V-port and solid turned designs for double or single seated valves and in a wide variety of materials. Send for Data Sheet No. 10-5.

Not Two

Masoneilan *Point 4 Factor Trim* offers the ONLY REALISTIC approach to selection of reduced capacity trim

It is a DEMONSTRABLE Fact that for a given size top-and-bottom guided valve only *one* size reduced capacity trim is:

Desirable from an engineering standpoint because . . .

(a) properly designed wide-range valves with full capacity trim will handle a vast majority of control problems.

(b) if any reduction is required, it must be substantial to be of any advantage.

(c) any sound design must be based on a reduction in seat ring diameter.

(d) rule-of-thumb trim reductions based on nominal *pipe* sizes are unnecessary and merely complicate the sizing problem.

Practical from manufacturing and operating standpoint because . . .

(a) mechanical strength is retained with standard guide and stem diameters and standard stroke, in combination with maximum reduction in seat diameter.

(b) reduction in number of parts simplifies stock problem.

(c) forged and cast forms insure complete uniformity of parts.

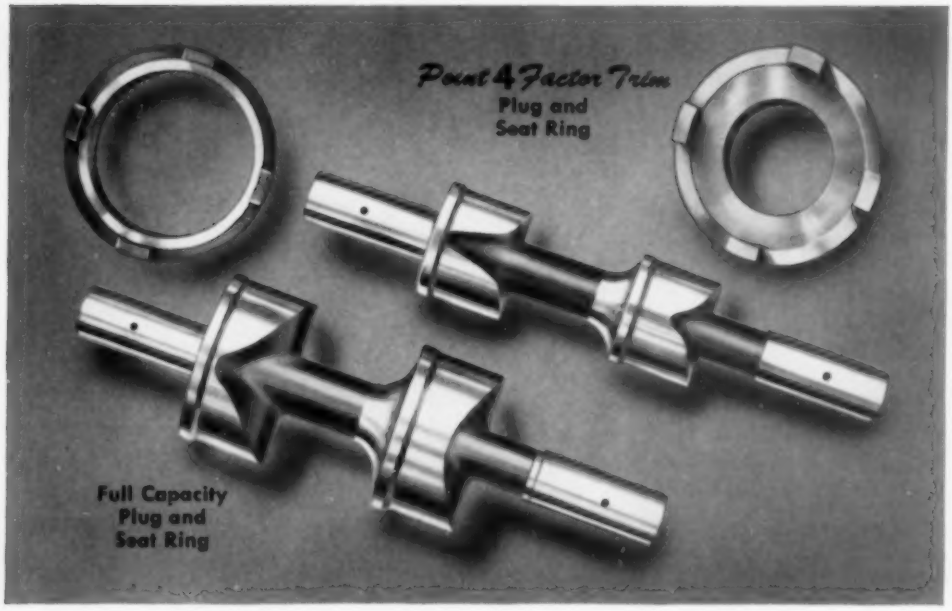
MASONEILAN

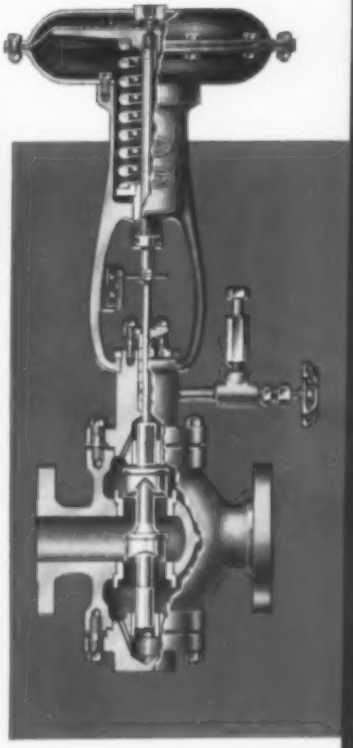
MASON-NEILAN

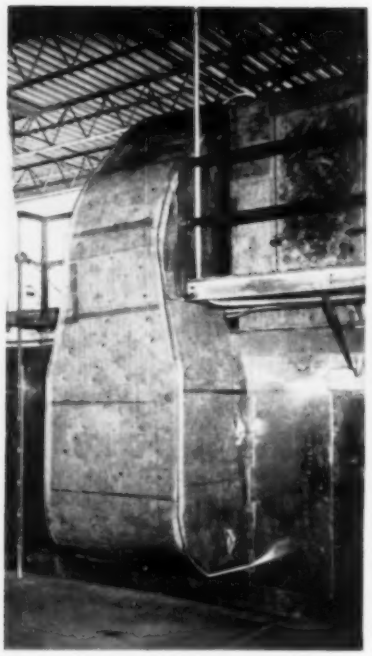
Division of Worthington Corporation

35 NAHATAN STREET, NORWOOD, MASSACHUSETTS

Sales Offices or Distributors in the Following Cities: New York • Syracuse • Chicago • St. Louis • Tulsa • Philadelphia • Houston • Pittsburgh • Atlanta • Cleveland • Cincinnati • Livonia • San Francisco • Boise • Louisville • Salt Lake City • El Paso • Albuquerque • Odessa • Charlotte • Los Angeles • Corpus Christi • Denver • Appleton • Birmingham • New Orleans • Dallas • Seattle • Mason-Neilan Regulator Co., Ltd., Montreal and Toronto







SPUN MINERAL WOOL FELT
For Large Surfaces Less than 600 F

SPUN MINERAL wool felt insulation is applicable for high temperature surfaces up to 600 F. Available in relatively large standard sizes, thus enabling the user to conveniently cover large areas, the felt is flexible enough to conform to curved surfaces without cutting or scoring, yet is rigid enough to support itself. Manufactured in a range of densities to suit many industrial applications, the material is also easily cut to conform to irregular shapes and can be very simply applied and finished.

Spun mineral wool felt, produced by the Baldwin-Hill Company, having a density of 6 lb per sq ft was chosen as the insulation for the 300 F recirculating ducts of a large conveyor oven. As shown in the first photograph, standard sizes of felt, 24 in. x 48 in. and 3-in. thick, were impaled on 4-in. pins previously welded to the duct surface. Circular clips secured the insulation. When required, smaller sections of felt were cut with a knife from the standard felt. Expanded metal lath applied over the felt is secured on the pins by clips to provide reinforcement for the finish coat of plastic insulation. Expanded metal corner bead was also fastened to pins welded along the edge of each duct panel.

After clipping excess length from the pins, the applicators then finished the job with a ¾-in. layer of Super Powerhouse Cement (center photograph), a white mineral wool insulating-finishing cement. Drying smooth and white when finish trowelled, the cement provides a clean attractive surface (right photograph). Although it was not done in this particular application the cement may be painted — water base paints are used if the cement is still wet, oil base if it is dry — or covered with canvas. Outdoor installations should be weatherproofed.

Atmospheric Pollution

(*Starts Page* 58)

were spent by members of the Committee processing hundreds of questionnaires returned by manufacturers and compiling information for the report.

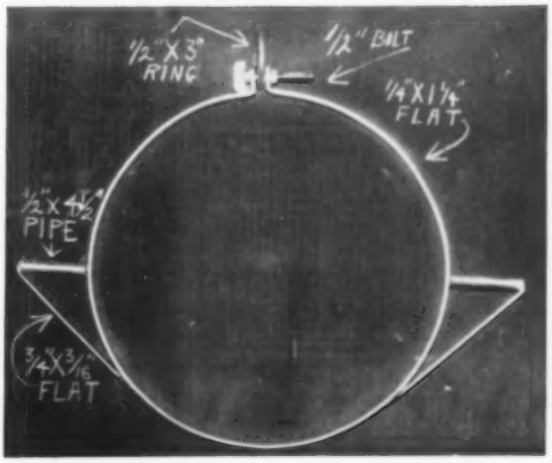
In addition to devices made especially for the study and measurement of air contaminants, the booklets calls attention to instruments which may be borrowed from other professions. One of these is the blood erythrocytometer, used by physicians to count the red and white corpuscles of human blood, but adopted by engineers to count dust particles in the atmosphere.

Mr. Mallette noted that a similar but less complete edition published a year ago, brought thousands of requests for copies from all parts of the world. The new booklet, titled "Instruments for the Study of Atmospheric Pollution" will be available from the ASME Order Department, 29 West 39th Street, New York 18, N. Y. at a cost of $2.00 per copy.

Barrel Lift Promotes Safety

THIS INEXPENSIVE, yet very effective barrel lift, devised by members of Oklahoma Gas and Electric Company's Woodward Plant at Woodward, Oklahoma, was recently described in "The Meter," a publication of OG&E.

Woodward Power Plant operators are guarding against lifting injuries with the illustrated lift, which aids them in handling 55 gallon oil drums. In the left photo, W. I. "Andy" Andress attaches the lift to a barrel; D. H. Bennyhoff and W. I. Andress demonstrate the two man lift (center photo); and D. H. Bennyhoff shows how to lift the barrel with a chain hoist. Construction details are illustrated. Photos courtesy of "The Meter."



Color Code Charts Pipelines — Safety

SAFETY practices through the use of color — to protect personnel and property — are outlined in a new Arco Co. reference chart. The 12" x 17" chart (suitable for shop posting) contains information on Pipeline Identification by Color and on the Uniform Color Code for Safety.

The Pipeline Identification system assigns materials to five main classes — safe, dangerous, protective, valuable, and fire protective. Colors identifying each of the classes are shown in bold face

letters on the chart. Material included in each class is specifically stated and the use of stencilled legends to aid in more exact identification is clearly illustrated and explained.

Six basic colors are used in the Color Code for Safety. Colors are supplemented by a series of symbols which help to make identification positive and easily remembered. Each color and symbol association is fully explained.

For your free copy of the Safety Practices reference chart, write The Arco Co., 7301 Bessemer Ave., Cleveland 27, Ohio.

Oil Removal

(*Starts on Page 52*)

oil to float on the water surface in the boiler drum.

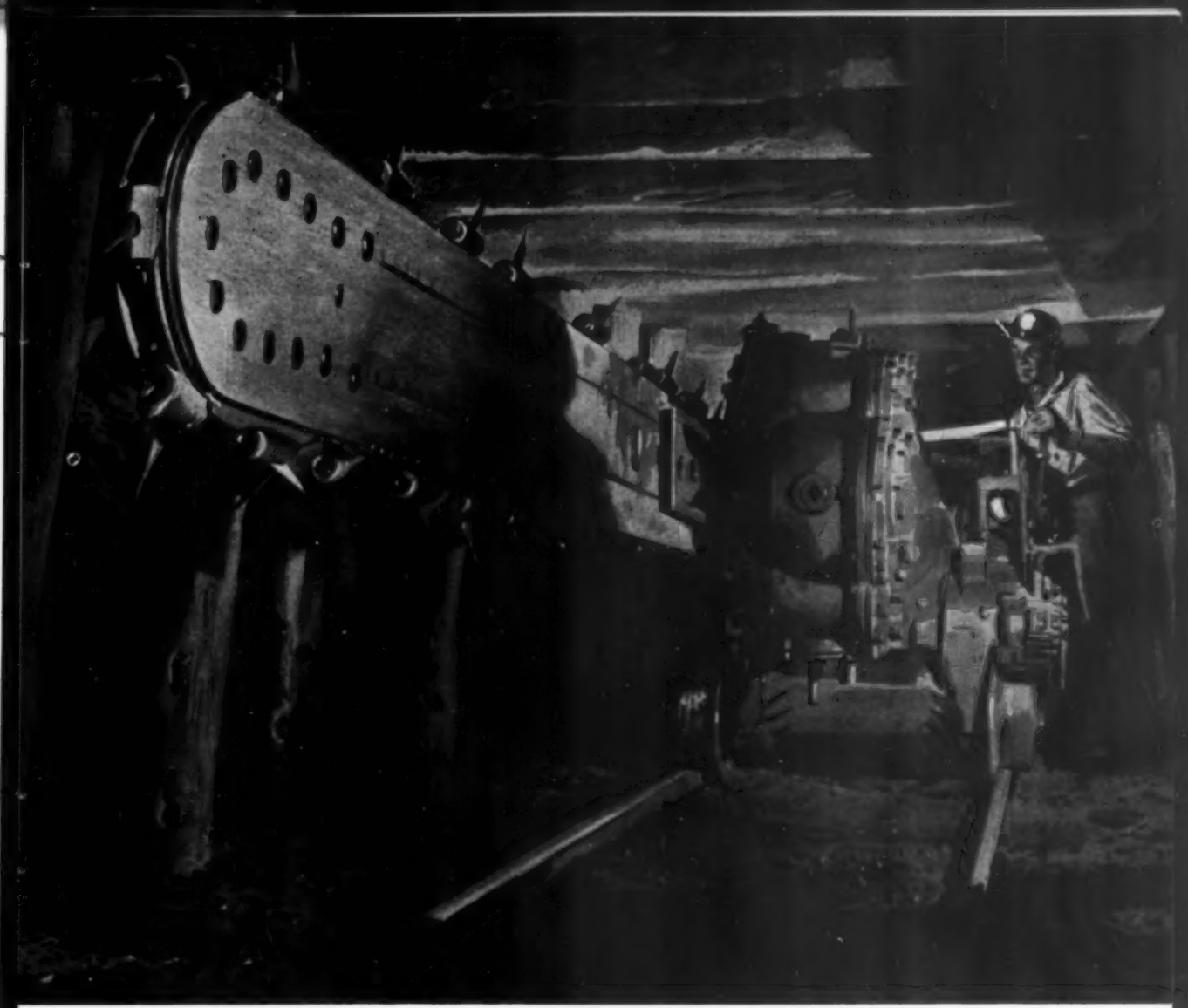
Boiling causes the oil film to be thrown upward against the metal surfaces to which it will adhere. In draining the boiler, this floating oil film also may re-deposit on the surface. The use of the proper type emulsifier will keep the oil dispersed in the water for a long period, thereby preventing it from rising to the surface.

Some wetting agents are effective for removing oil and holding it in solution. However, most wetting agents have the property of forming an extensive foam which is objectionable. Some limitations must be placed on the amount of foam, because draining through blowdown will not effectively remove foam. Also, on boilers containing superheaters, foaming in the steam drum will cause carryover into the superheater section where evaporation to dryness may take place with resulting deposits in this section. For these reasons, a satisfactory boil-out mixture should not have foaming properties. Either antifoam agents should be added to the formulation or non-foaming wetting agents should be employed.

Manufacturers of boiler water chemicals have given specific attention to the boil-out problem and offer prepared formulations that provide the greatest detergent, emulsifying, and dispersive action on greases and oils normally encountered. Protection against embrittlement also can be provided in the formulation. For convenience in handling, some organizations offer the boil-out mixture in briquette form.

Boil-Out Procedure

Before starting the boiling-out procedure, it is generally good practice to replace the normal high pressure gauge glasses with temporary glasses to prevent attack on the glass by the various detergents in the boil-out mixture. The required quantity of boil-out chemicals can be dissolved in water and added to the boiler in



BEACON COAL

EASTERN GAS AND FUEL ASSOCIATES

PITTSBURGH • BOSTON • CLEVELAND • DETROIT • NEW YORK
NORFOLK • PHILADELPHIA • SYRACUSE

For New England: New England Coal & Coke Co., For Export: Castner, Curran & Bullitt, Inc.

MODERN OIL AND GAS FIRED BOILERS

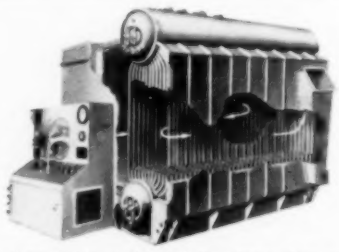
The boilers illustrated here cover the broad capacity range from 4,000 to 600,000 lb of steam per hr. They are all especially designed for gas and/or oil firing. The two units illustrated at right (Types VP and VU-55) are standardized and each is available in several sizes. The capacity range covered by these two units is from 4,000 to 120,000 lb per hr. The two units below are custom designed for various capacity, pressure and temperature requirements up to 600,000 lb per hr, 1400 psi and 950 F. All these units are pressure fired and do not require induced draft fans.

Collectively, they offer an exceptional diversity of choice. A brief consideration of the features of each type will help you "pinpoint" the design characteristics best suited to your particular needs.

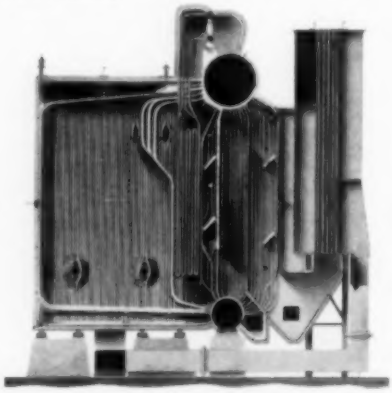
Of course there are other C-E two drum Vertical-Unit Boilers available for pressures up to 1400 psi and temperatures up to 960 F. Shown here are but four popular members of the C-E family of Vertical-Unit Boilers—a family which has achieved a wide measure of acceptance using all types of fuel.

Please feel free to call on us for further detailed information. Catalogs are available upon request.

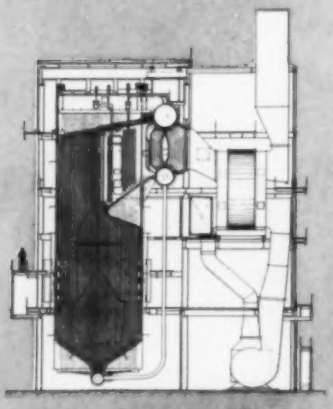
B-922-A



C-E Package Boiler — Type VP Completely shop assembled . . . available in fourteen sizes from 4,000 to 40,000 lb capacity . . . pressures to 500 psi. Available with integral console control panel, this unit contains more water-cooled area per cubic foot of furnace volume than any other boiler of its size and type. It can be equipped with any of several approved burners.

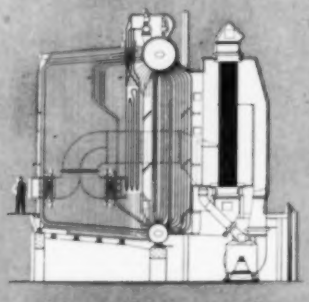


C-E Vertical Unit Boiler — Type VU-55 Available in six sizes . . . capacities from 50,000 to 120,000 lb steam per hour . . . designed for two pressure ranges, 250 psi and 500 psi, and total steam temperatures up to 750 F. This double cased, gas-tight unit is equipped with tangential burners. A large (60-inch) steam drum assures generous water capacity and steam reservoir space. Tangent tube waterwalls offer complete furnace protection, minimizing maintenance.



C-E Vertical Unit Boiler — Type V2

This unit is available for capacities from 200,000 to 600,000 lb per hr. It can be designed for pressures up to 1400 psi and for temperatures to 950 F. Tilting tangential burners, providing superheat control, are standard equipment although horizontal burners are available, if desired. A double, gas-tight casing assures lifetime tightness and minimum heat loss. Heat recovery equipment can be furnished as desired.



C-E Vertical Unit Boiler — Type VU-50B

This unit is available for capacities from 50,000 to 400,000 lb per hr—pressures to 1400 psi and temperatures to 950 F. This bottom-supported design uses tilting tangential burners providing effective superheat control. Horizontal burners can be furnished if desired. Heat recovery equipment as required. This unit makes available to industrial installations a standard of performance comparable to utility practice.

COMBUSTION ENGINEERING

Combustion Engineering Building

200 Madison Avenue, New York 16, N. Y.

STEAM GENERATING UNITS · NUCLEAR REACTORS · PAPER MILL EQUIPMENT · PULVERIZERS · FLASH DRYING SYSTEMS · PRESSURE VESSELS · HOME HEATING AND COOLING UNITS · DOMESTIC WATER HEATERS · SOIL PIPE

solution form. Where boil-out briquettes are used, the required number can simply be placed in the boiler drum or divided equally between the drums of a multi-drum boiler.

After addition of the boil-out chemicals, all manholes should be closed and the boiler filled to the top of the gauge glass with the vents open. The boiler should be fired at a low rate in accordance with manufacturer's recommendations. When the boiler water reaches a temperature of 212 F and steam is flowing freely from the vents, all vents should be closed except those specified by the manufacturer on boilers containing superheaters where superheater protection is required.

The pressure should be raised to a minimum of 25 psi and should be maintained for approximately 48 hours. For higher pressure boilers it is usual to boil-out at one-half the operating pressure to secure circulation. The manufacturer's recommendations on boil-out pressure should be followed.

The boiler should be blown down one-half the gauge glass approximately every eight hours through the bottom blow-off valve. Should there be more than one blow-off connection, use alternate valves. After blowdown, the boiler should be refilled to the top of the glass.

The fire should then be put out and the boilers allowed to cool gradually. When the boiler is cool, all drain and blowdown valves should be open and the boiler drained completely. All parts should be washed thoroughly with a high pressure hose and after this washing, a thorough internal inspection should be made. If any scum or oil remains, the boiling-out procedure should be repeated.

It should be noted that the action of the boil-out materials and procedures we have described is specific to the removal of oil and grease and should not be expected to remove mill scale present on new boiler surfaces or scale deposited from lack of or improper feedwater conditioning.

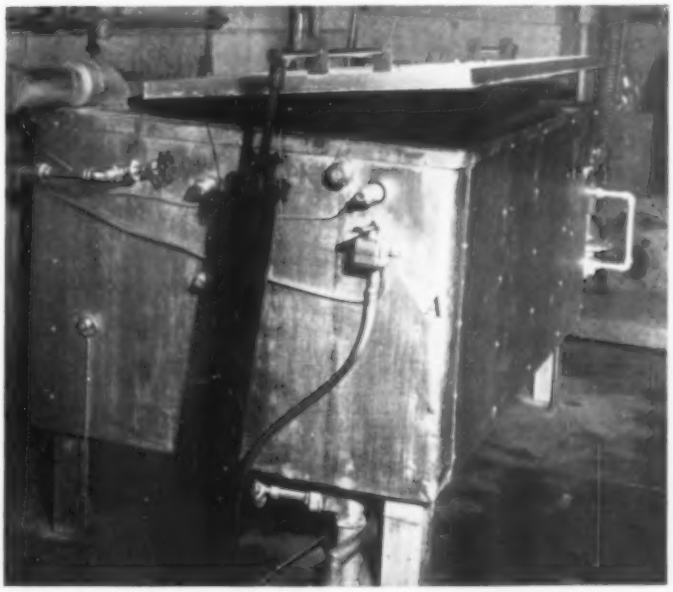
The use of a boil-out precedure is advisable in the removal of oil and grease from new boilers. It should also be employed in periodic boil-out of any units that are unavoidably contaminated by oil during operation. Of course, the most desirable procedure for elimination of oil is by the use of external equipment which will remove the oil from the boiler feedwater. However, in plants without such equipment the accumulated oil sludge should be removed at regular intervals by the use of an effective boil-out mixture.

Steam Pump Operation & Maintenance Tips

FOR INCREASED service life of all types of steam pumps, Worthington Corporation has issued a new 23-page bulletin offering 28 tips on proper installation, and 54 tips on field-proven care techniques. Bulletin features 88 illustrations with informative captions.

Most of the conditions you may encounter are covered. But before you install and operate your pump, be sure to study the instruction book that comes with it. Also, be sure to order the necessary spare parts and keep an adequate supply on hand.

For a copy of Bulletin G-2280P — "How to Install and Take Care of Steam Pumps" — call your Worthington distributor or write Advertising & Sales Promotion Dept., Worthington Corporation, Harrison, New Jersey.



Air-Operated Lid Adds Safety

OPERATED by shop air pressure actuating a piston inside a pipe cylinder, the heavy lid of this dip tank is made to open and close via a 2-way control valve (A), thus preventing possible injury when inserting or removing parts requiring cleaning. Air is blown in to agitate the solution.

A safety bracket (right) keeps the lid up when it is open, as an added safety precaution.

By HENRY MAYO, Sarasota, Florida.

Do You Need a Fuel Oil Treatment?

By A. T. LOHKAMP, Engineer

Pasco Packing Company
Dade City, Florida

THIS QUESTION has been kicked around for many years without a definite answer being available. Similar to water treatment in two aspects at least this problem has no easy solution. First, the need for treatment will vary with different plant factors such as amount of storage capacity, how often the oil is changed in storage, length of oil suction lines, size of suction lines to pumps, types of automatic controls (if any) that are used. Second, type and analysis of oil will also affect selection of treatment.

The sludge formed in fuel oil tanks may consist of a number of ingredients such as water, free carbon, congealed heavy residual oils, gums, tars, resins, mud, sand, stone, wood splinters, rust, gasket materials, hose shreds, rag shreds and even rags. All of these contaminants may be present in some storage tanks while other tanks may have only a few. There is no fuel oil additive made that will do away with all of these contaminants.

A good additive should have no trouble attacking and dispersing the gums, resins, tars or congealed heavy residual oils. If the additive contains a good solvent it will attack and disperse these ingredients which may be present as a part of the oil when delivered or may accumulate over a period of time as sludge settles to the bottom of the tank.

Free carbon is combustible and should cause little or no trouble if kept suspended.

Water may be present in the oil or may accumulate in the storage tank due to temperature changes and condensation. Water will settle to the bottom of the storage tank where it will do little harm except rust the tank, unless it gets into the pump suction.

If a pocket of water were to enter the pump suction and pass to the burners, it is conceivable that ignition would fail. This water, having put out the fire or caused failure of the flame, would be followed by oil which, when it reaches the boiler fire box, might be ignited from the hot refractory, resulting in a fire box explosion. Therefore, a good oil additive would contain an emulsifying agent to form a water and oil emulsion in which the water is in the form of extremely fine droplets which do no harm. Water need not be present in large amounts to cause combustion difficulty. Small amounts present in the oil may cause sparking and spitting of the flame.

Many additives are good emulsifiers and solvents. They should dissolve tank sludge or keep it in suspension so that it will burn instead of accumulating on the tank bottom. Additives having good solvent action should prevent sludge formation.

No Cure-All Treatment

Materials such as mud, sand, rock, wood splinters, rags, hose shreds, flake rust and gasket materials will not be affected by any type of fuel oil treatment. The manufacturer who claims a cure-all treatment is either misleading or has not stopped to consider these constituents of fuel oil sludge which may or may not be present.

When a plant has a small tank equipped with a bottom suction and operation is continuous so that the fuel oil does not have a chance to settle, it is doubtful whether fuel oil treatment would be necessary. There are many advantages to be derived from the use of a fuel oil additive such as clean lines, clean tanks less sparkling, less soot, cleaner burners (due to less carbon or burner tips), and easier and quicker lighting of burners. Faster combustion can be of great importance in prevention of flashback on automatic package boilers.

The claim of viscosity reduction made by many additive manufacturers is an overworked and far fetched claim. Recommendations for use of the average fuel additive are usually one quart per thousand gallons of oil. This would be .025% or 1/40 of 1% by volume. Paul F. Schmidt in his book, "Fuel Oil Manual" has stated that the greatest reduction in viscosity obtained in laboratory tests using a 1% treatment was 6.9%. Normal dosage would then reduce the viscosity by .1725% which would be very hard to find if it did take place.

Plants having large storage tanks where oil is added and left for several days or weeks or in plants having intermittant operation, a good fuel oil additive would probably show operating improvement with less trouble. Plants having relatively large fuel oil storage tanks that do not have the suction from the bottom will probably find upon checking that sludge and sediment has built up or is building up in the bottom of the tank. This sludge contains a great number of heat units that can be made available by the use of a good fuel oil additive.

There are probably no more Btu's in the sludge than would be present in that much oil but when sludge builds up to the level of the suction line, then trouble in large doses can be expected.

Certain types of boiler controls are subject to detrimental effects due to sludge accumulations and carbon buildup during periods of no operation and periods of low rate of firing. Many types of burners are affected by buildup in the heaters and controls so that the use of a good fuel oil additive is essential to good operation, especially when continuous operation is essential.

Bunker "C" and heavy fuel oils may contain from less than 1% sulphur to over 3% sulphur. Those oils containing over 1% sulphur

Editor's Note:
The question of fuel oil treatment is somewhat controversial. The editors will welcome comments from readers on this subject.

This Bailey Meter Control System is —

Saving Fuel at Appliance Park

★ General Electric Company at its Appliance Park Boiler House, Louisville, Ky. has found that Bailey Controls help to save fuel by continuously maintaining desired operating conditions.

With a Bailey-engineered control system you can count on a high output of available energy per unit of fuel.

Here's why:

1. Suitable Equipment

When you receive equipment recommendations from a Bailey Engineer his selections come from a complete line of well-engineered and carefully tested products.

2. Seasoned Engineering Experience

Your local Bailey Engineer brings you seasoned engineering experience based on thousands of successful installations involving problems in measurement, combustion, and automatic control.

3. Direct Sales-Service—close to you

For your convenience and to save time and travel expense there's a Bailey District Office or Resident Engineer in or close to your industrial community.

For greater fuel savings, less outage and safer working conditions, you owe it to yourself to investigate Bailey Controls. Ask a Bailey Engineer to arrange a visit to a nearby Bailey installation. We're glad to stand on our record. A128-1

FORMULA
for Cutting Steam Costs

\+ Bailey Design
\+ Bailey Engineering
\+ Bailey Service
= Greater Savings per Fuel Dollar

BAILEY
METER COMPANY
1028 IVANHOE ROAD
CLEVELAND 10, OHIO
Complete Controls for Steam Plants

BAILEY METERS
Controls for
COMBUSTION
FEED WATER
TEMPERATURE
PRESSURE
LIQUID LEVEL
FEED PUMPS

are usually considered as high sulphur oils. The sulphur may be present in a variety of compounds such as hydrogen sulfides, and alkyl sulfides. The most common, hydrogen sulfide, is corrosive when it comes into contact with metals. It is present as a gas dissolved in the fuel oil but may be washed out by condensation forming under the storage tank roof and dripping into the fuel oil. Again, a good fuel oil treatment will contain enough alkali and enough emulsifying agent to protect the steel of the tank.

By using a good fuel oil treatment we have operated for twelve years without trouble due to stopped oil heaters, lines, or sludge deposit in the bottom of our storage tank. Entering the tank only after this period, there was no accumulation of sludge, water, or sediment of any kind on the tank bottom and absolutely no corrosion present. The only trouble we have had was during a period when the steam load reached an unprecedented high valve and we ran out of treatment due to the volume of oil burned.

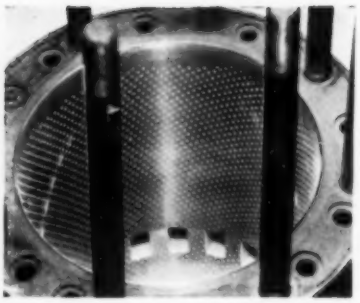
Chromium Plating Cylinder Liners

A SPECIAL METHOD of chromium plating diesel engine cylinder liners—plating in textured patterns—reduces the need for engine maintenance by greatly extending service life. The plated liners outlast unplated cast iron liners an average of 4 to 1, depending upon the nature of the service. On the big diesels used in municipal power generating plants, the ratio is frequently as high as 6.5 to 1.

The plating process was developed by Chromium Corporation of America, an affiliate of Metal & Thermit Corporation. Worn liners removed from the engines are shipped in to one of Chromium Corporation's plants for application of the plating. Meanwhile, installation of spare plated liners quickly returns the engine to service.

Chromium plating imparts unusual resistance to heavy abrasive wear as well as to chemical corrosion. It has extremely low friction characteristics and is inherently suited as a surface for combustion chambers.

Despite these desirable properties of the deposit, however, the conventional smooth chromium plated finish would not provide sufficient retention of the lubricating oil.



TEXTURED PATTERNS on plated surface create reservoirs to retain the oil.

To overcome this difficulty, Chromium Corporation of America has developed a means of providing a textured pattern on the plated surface which creates minute reservoirs in the surface to retain the oil.

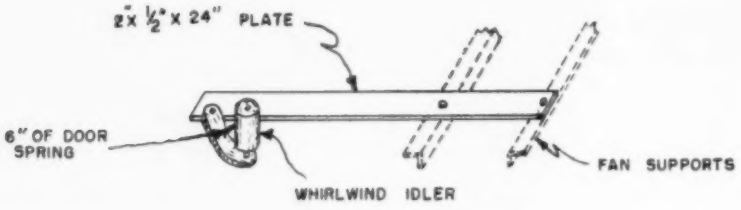
Either of two texture patterns can be supplied: a random open grain surface, or a geometric "Honeychrome" pattern.

In the first, the liner is rebored for true concentricity and smoothness and the inner surface is blasted to produce a grained pattern in the iron. The chromium plating, which duplicates the blasted surface, is then honed to final dimensions. The finished surface has a random open grain texture.

The second or "Honeychrome" method applies a regular, geometric pattern to the surface of the deposit. The trend at present is toward more widespread use of the precise geometric pattern obtained by the "Honeychrome" process.

The plating process generally is applicable to liners of all medium and large size diesel engines. It is seldom used on the smallest size bores because of the lower normal replacement cost of small diameter cast iron liners.

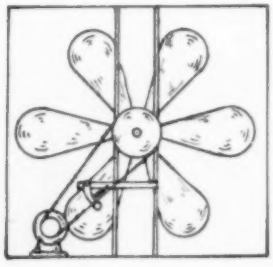
The harmful wear in the bore occurs on the side opposite the thrust. Typical wear on liners sent in for salvage is around .015 inch on the diameter, but ranges from .010 to .060. After reboring for concentricity the plating is applied in sufficient thickness to restore the original dimension. Wear of .060, of course, requires a deposit thickness of .030 to restore the original diameter.



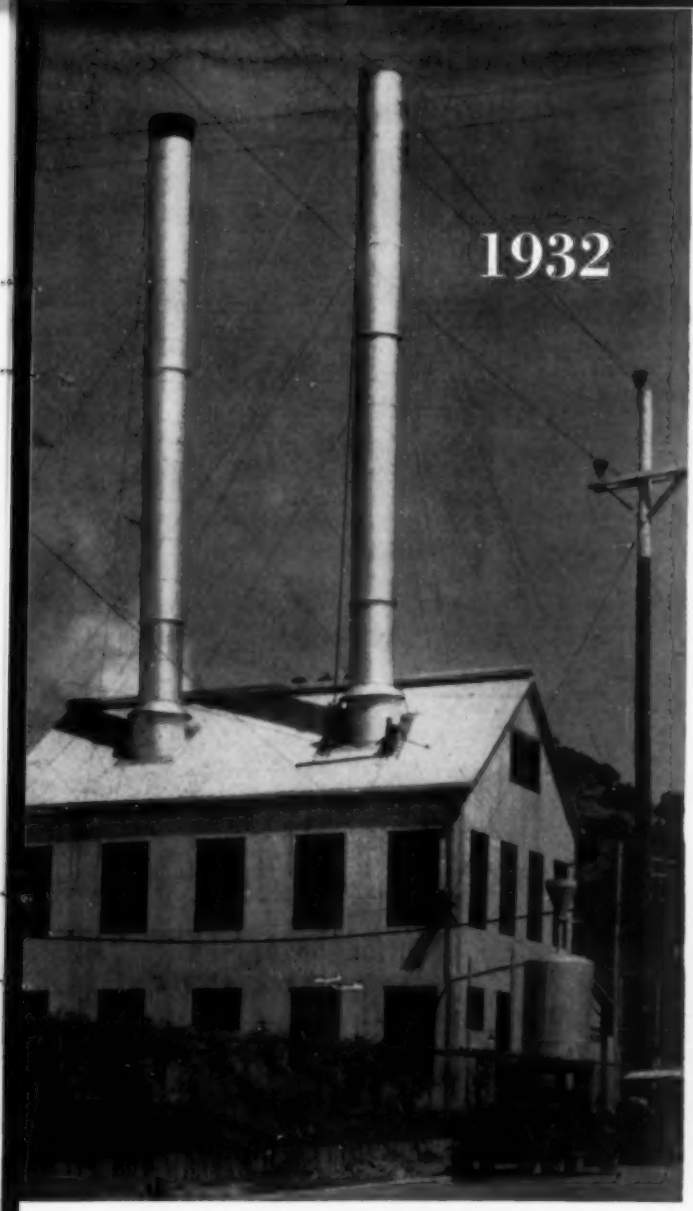
Belt Idler for Ventilator Fans

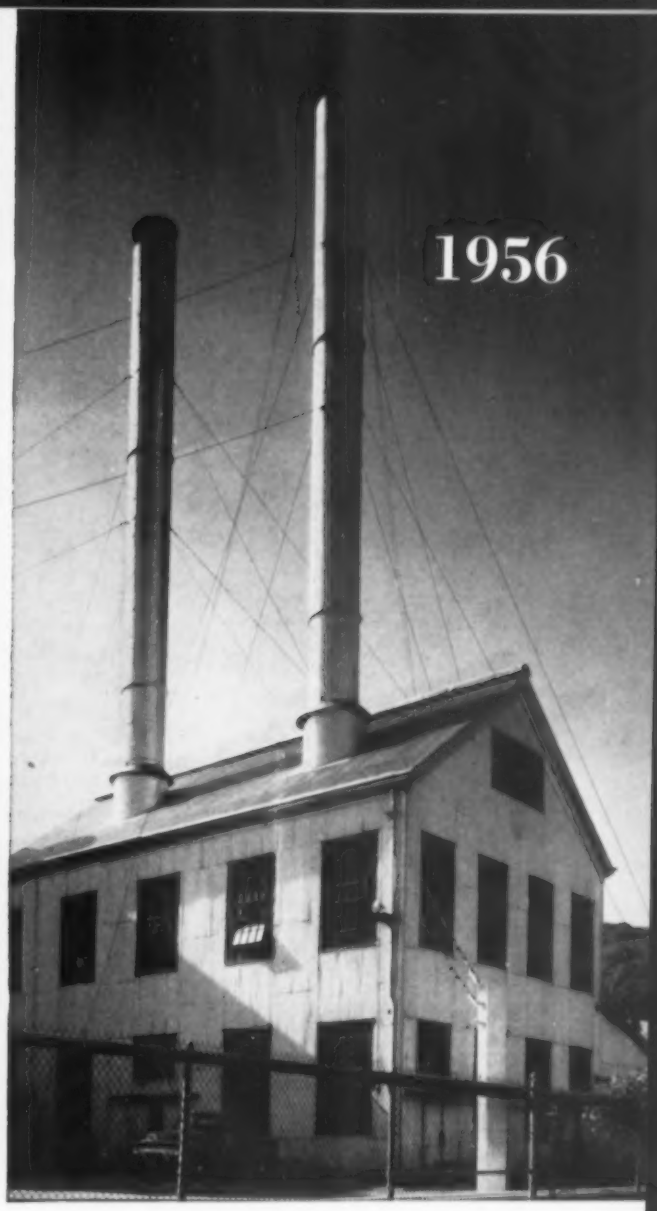
BEFORE THE installation of a belt idler on some of the roof ventilator fans, it was necessary to tighten the belt at least once a month. Even then there was some belt slippage and wear.

The new idler—installed as illustrated—keeps a constant tension on the belt which eliminates having to adjust the belt as it loosens.



By WILLIAM P. DRAKE, Gas Plant Repairman, Katy Gas Cycling Plant, Humble Oil & Refining Co., Katy, Texas.





Installed 24 years ago.....still in excellent condition
Here's another Wrought Iron Plate durability story

After twenty-four years of service over boilers, these wrought iron stacks still rate a "no maintenance needed" inspection report.

These stacks, installed at San Rafael, California, Gas Plant of Pacific Gas & Electric Company, tell the kind of story repeated over and over again whenever wrought iron is used. It's a story of economy made possible because of wrought iron's unique defense against flue gas corrosion.

Byers wrought iron plate is an old campaigner in stack service. You'll find documented evidence of its endurance in our bulletin, *Wrought Iron for Flue Gas Conductors and Coal Handling Equipment.* Clear up a lot of questions about stack maintenance. Write us today for this helpful aid . . . it will pay you.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Division Offices in Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. International Division: New York, N.Y.

Available in Canada and throughout the world

BYERS *Wrought Iron Tubular and Hot Rolled Products*

ALSO ELECTRIC FURNACE QUALITY STEEL PRODUCTS

Equipment . . . Supplies . . . Methods

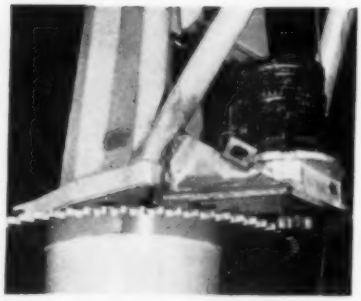
FOR FREE INFORMATION — Circle Code Number on Page 17 Return Card

Power-Rotated Jib Crane; Capacities up to 15 Tons

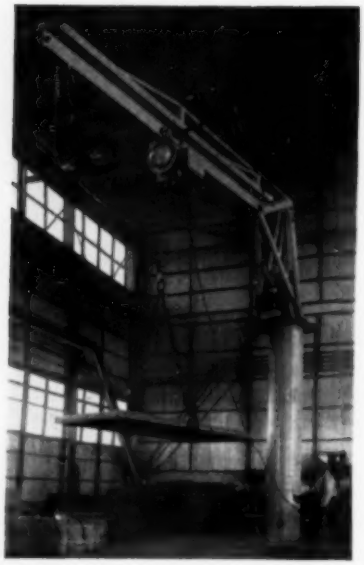
H-1 All-electric, 360° revolving jib cranes, which provide powered handling for 1936 sq ft of floor space, are being produced by **R. G. LeTourneau, Inc.**, Longview, Texas, in capacities of 6, 7½, 10 and 15 tons.

The electric rotating mechanism, as well as the electrically-powered hoist and hoist trolley, are built to provide fraction-of-an-inch control.

Units are particularly applicable where one-man handling is required of such items as castings, ingots, machine tools, power units, steel slabs and other loads within the 30,000 lb class. The cranes can be used to avoid expensive tie-ups of overhead cranes, and their all-weather design makes them ideal for outdoor or indoor work.



Close-up shows LeTourneau high-torque motor geared between crane pillar and rotating mechanism. All components readily accessible for quick servicing.



One man exercises easy control of thick plate as new LeTourneau power-rotated jib crane lifts load, swings boom, travels trolley, and is ready to "spot" load at precise point desired.

Manually-Powered Fastening Tool

H-2 The Shure-Set, a multi-use, manually - operated fastening tool has been introduced by **Ramset Fastening System Div.**, Olin Mathieson Chemical Corp., 12117 Berea Road, Cleveland 11, Ohio. Device is for light fastening in work which cannot be done by such simple fastening techniques as a hammer and ordinary nail and which does not require the force provided in power-actuated fastening tools.

Tool is claimed to end the need of such fastening devices as toggle bolts, expansion shields, anchors, and concrete nails. It eliminates the tedious job of star drilling.

The tool sells for approximately $27.95. It is packaged in a metal carrying kit with long and short collars, one-quarter inch and three-sixteenth - inch stud holders and drive rods. Changeover from one fastener to another is simple.

Shure-Set is recommended for 158 different light fastening uses in general industrial plants. By striking the top rod with a hammer, the fastener is seated into the surface. Base plate levels the tool at right angles to the work and a hand grip keeps the hand from sliding. Tool is used by electricians, plumbers, sheet metal workers, carpenters, maintenance men, etc.

Shure-Set is simple to use. The anvil or head of the tool, when hit with a hammer, drives the fastener securely into the surface. There is minimum risk to the worker. A hand guard offers protection and the leveling plate protects the user from flying splinters.

Equipment, Supplies & Methods (Continued)

Glass Fiber Reinforced Plastic Building Panel

H-3 Corrulux Division, **L-O-F Glass Fibers Company,** Box 20026, Houston 25, Texas, has developed "Granitized" Corrulux, a very durable glass fiber reinforced plastic building panel for skylights, sidelights and window panes.

Surface erosion and its inherent disadvantages have long been a problem with the industry. When surface of ordinary panels erodes, (usually two to three years) reinforcing glass fibers are exposed. Fibers then reflect the light instead of transmitting it, clouding the surface, retaining dust and dirt and drastically reducing original light transmission.

The new "Granitized" Corrulux is claimed to offer superior erosion resistance. The products greater durability has been proven. Controlled sandblasting was used to simulate the effects of rain, sand and sleet erosion over an extended period of time. Corrulux withstood up to six times more sandblasting than other panels tested before fiber erosion became comparable. Samples

For More Free Data CIRCLE CODE NO. on the Handy Return Card — Page 17

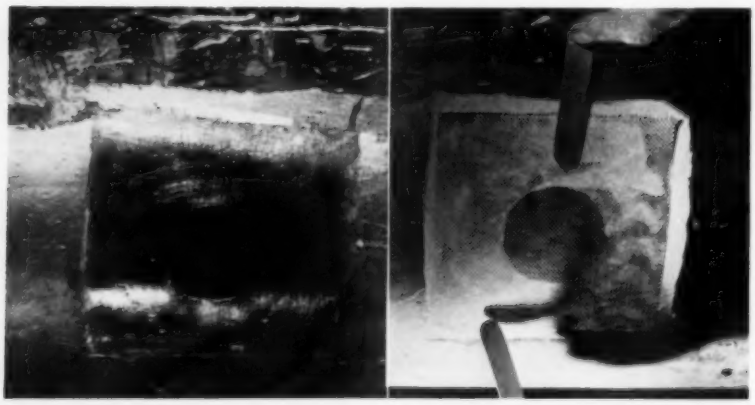
of Granitized Corrulux and leading competive samples were immersed for ten minutes in a 95% sulfuric acid solution. Competitive samples were badly eroded while the new product was virtually unaffected.

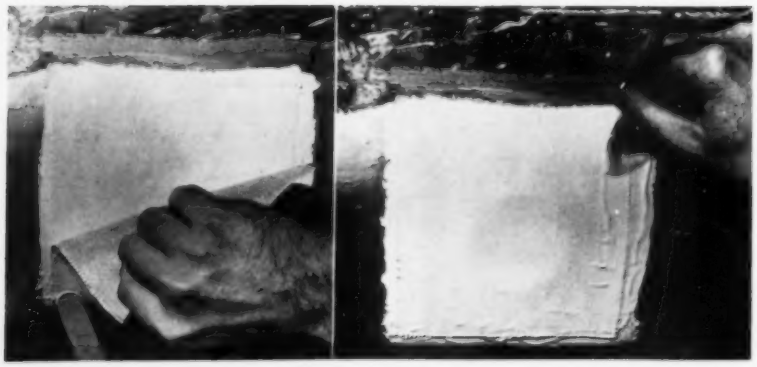
Tank Repairs Without Welding

H-4 A method of making repairs to metal tanks, pipes and conduit without welding, has been developed by the **Smooth-On Manufacturing Co.,** Jersey City 4, N. J. Method employs a filled epoxy resin material called Sonite and glass cloth.

The hazards and difficulties involved in making welded repairs have long been troublesome in many industries. This is especially true where flammable materials are being handled and complete evacuation of all liquids, gases, or powders becomes necessary before welding can be started.

Patches made with the new Smooth-On Manufacturing Company's epoxy compound have been tested to over 1,000 psi for extended periods without failure. Corroded or broken out areas, split seams, breaks, and porous areas can be quickly, easily, and effectively repaired in tanks, pipes, or conduit handling gasoline, fuel and lube oils, acids, alkalis, etc.





LEFT — 3 in. diameter hole cut in tank simulates a corroded or broken out area. Surrounding metal has been abraded clean and washed with brush cleaner supplied in the Smooth-On Sonite P-2 Repair Kit. Extent of surrounding area cleaned depends on size of patch applied and strength required. Prime coat is applied and becomes tacky-hard in about a half hour at room temperature.

Sonite is claimed to have great chemical stability and good adhesion to metals; it is oil and waterproof, resists acids and alkalis, and will withstand temperatures to 200 F. It is available in white, designated as Sonite P-2, and aluminum, designated as Sonite P-5.

For More Free Data CIRCLE CODE NO. on the Handy Return Card — Page 17

INGALLS furnishes STEEL MUSCLES

for the WORLD'S LARGEST POWER PLANT

This is the world's largest steam-electric plant, recently completed near Kingston, Tennessee, by the Tennessee Valley Authority. The entire plant has a capability of one million, six hundred thousand kilowatts — about fourteen times that of Norris Dam. With a generator room 895 by 115 feet, a boiler room 868 by 138 feet, and a shop and office area 200 by 205 feet, the main building of the nine unit structure is by itself tremendous; some idea of the whole plant's scope may be realized by considering the twenty two million man hours that went into planning, designing, construction, and secondary services.

View of turbine room in Ingalls-fabricated powerhouse; 7 units in operation; 150,000 kw units in foreground

INGALLS, specialist in steel for power plants, is genuinely proud of having been called upon to fabricate the structural steel used in the powerhouse proper for this monumental operation. It represents one more in a large series of power installations done by Ingalls in twenty two different states, throughout the North, South, East, and Southwest. Wide and intense practical knowledge makes Ingalls ready *now* to help you with both speed and true economy. Your inquiries will be promptly acknowledged.

FABRICATING STEEL IS OUR BUSINESS

THE INGALLS IRON WORKS COMPANY

BIRMINGHAM, ALABAMA

SALES OFFICES: New York, Chicago, Pittsburgh, Houston, Atlanta, New Orleans

PLANTS: Birmingham, Ala.; Verona, Pa.; Pascagoula, Miss.; North Birmingham, Ala.; Decatur, Ala.

Equipment, Supplies & Methods (Continued)

Pipe Repair Clamp

H-5 A dual purpose repair clamp for water, gas or oil pipelines has been introduced by **Smith-Blair Incorporated,** 535 Railroad Ave., South San Francisco, Calif. Specific applications are for quick, permanent repair of cracked or broken pipe and to connect two lengths of cast-iron, steel or asbestos-cement pipe in a trench. The new Full Circle Clamp Coupling embodies ball and socket pivoting ductile iron lugs and free floating bolts. These features give increased holding power and provide easy installation on the pipe without service shut-off.

Pipe sizes are listed in a new bulletin — Series 2F — from 2" through 24" nominal sizes.

For More Free Data CIRCLE CODE NO. on the Handy Return Card — Page 17

Cylinder Mountings Compensate for Misalignment

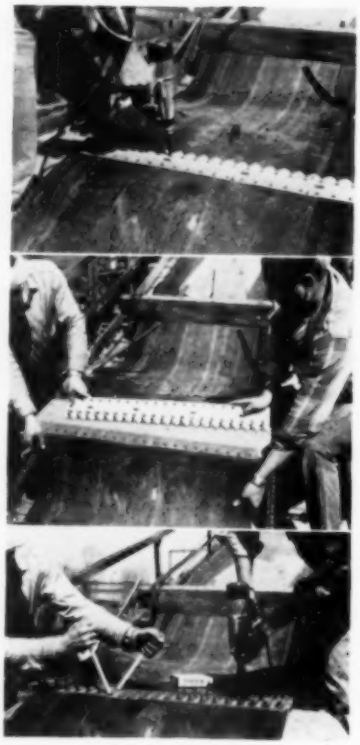
H-7 The problem of proper alignment between air and hydraulic cylinders and their work loads has frequently been a source of trouble to industry. Universal Cylinder Mountings, developed by **Hanna Engineering Works,** 1765 North Elston Ave., Chicago 22, Ill., are simple and provide positive protection against breakage due to misalignment.

Mountings are available in two forms: a hinge mount cylinder with universal mounting brackets at each end; and a cylinder with universal trunnion and universal mounting bracket for the rod end.

Applications include operation of hopper gates; elements rotating about shafts, such as gear segments and levers; and objects moving on wheels or tracks such as trucks or transfer tables. Bulletin 76 gives details.

Power Tools Speed Conveyor Belt Splicing

H-6 A new, faster method of splicing conveyor belts with Flexco Belt Fasteners has been announced by the **Flexible Steel Lacing Company,** 4625 Lexington St., Chicago 44, Ill. The speed with which these fasteners can now be applied will considerably reduce the down time of belt conveyors.



The three photos show mechanics using the new Flexco Power Tools.

Top—Power tool boring bit is being used to bore holes in belt for insertion of fasteners.

Center — Having inserted the fasteners through the holes in one end of the belt templet is now being used to position bolts for the other end.

Below — Nuts are being run down with the power tool wrench by one man while the other is using two bolt breakers to break off the excess of the bolts that remain.

New templets now eliminate the inconvenience of inserting fasteners from the pulley side of belts. A new boring bit and alloy steel wrench have been designed for use in standard electric or air impact tools. Their use will cut in half the time formerly taken to apply fasteners by the hand method.

Actual tests made in the field by the manufacturer showed that a two man team could apply fasteners on a 30" wide joint in from 15 to 20 minutes.

Lightweight Electrode Holder

H-8 A new, lightweight arc welding electrode holder has been announced by **Tweco Products, Inc.** of Wichita, Kansas. Called the No. AL-300 Twecotong, the new holder has a body and upper lever made of high conductivity aluminum forgings. The new holder weighs just 13½ ounces which is a reduction in weight of about 50% under conventional holders made of copper castings.

The forging gives the holder high tensile strength and increases the conductivity to a point where it surpasses copper castings. Both the upper and lower replaceable jaws of the holder are made of pure copper and are cadmium plated to resist corrosion and to prevent weld spatter sticking to the jaws. All parts of the holder are easily replaceable.

The welding cable is easily attached to the holder by baring the cable end and inserting it in the reamed hole in the holder body. One large ball point Allen screw holds the cable securely in place and makes

an excellent electrical connection. The holder can be installed on a cable in less than two minutes.

The new AL-300 Twecotong Electrode Holder sells for $6.90 and is distributed by welding supply distributors from coast to coast.

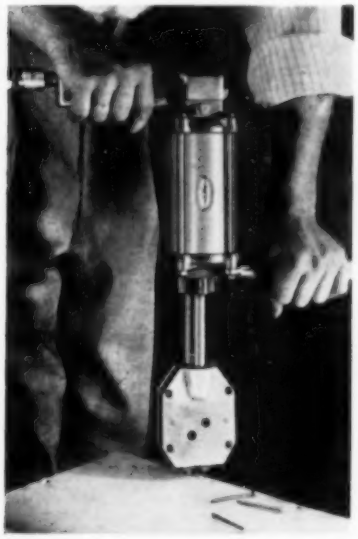
Automatic Nail Puller

H-9 **The Bellows Co.**, Akron 9, Ohio, has added an automatic nail puller to their line of "Controlled-Air-Power" work devices.

The hand tool removes nails from crates, boxes, lumber, etc., in a fraction of a second. One man equipped with an Automatic Nail Puller can do work equivalent to that of three and four men using ordinary methods

Built around a Bellows Air Motor — the air cylinder with built-in control valve — the automatic Nail Puller is easy to use. It weighs only 10 lb. The one air connection required may be made with the 12 ft length of ¼" hose supplied with the unit.

Pulling action is quick and clean. Crates and boxes may be opened and completely dismantled and temporary building forms can be salvaged without lumber spoilage.



Two models are available, one for pulling common nails in the general range of 3- to 7-penny sizes and one for the general range of 6- to 10-penny sizes. These units differ only in the size of the jaws. An extra set of jaws may be purchased to permit either model to do the work of both.

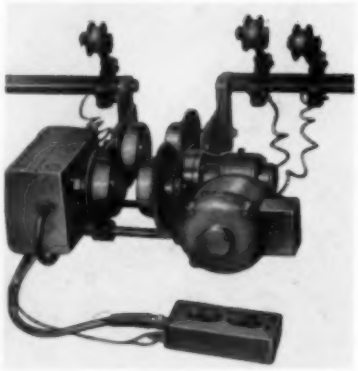
Equipment, Supplies & Methods (Continued)

Motor Driven Trolley

H-10 Shaw-Box Crane & Hoist Division of **Manning, Maxwell & Moore, Inc.,** Muskegon, Michigan, has announced a new, lightweight single speed push-button controlled motor driven trolley for installation on electrically powered hoists having capacities of from 1,000 through 2,000 lb. Known as the Series "600" 'Load Lifter' Motor Driven Trolley, it complements the 1,000 to 12,000 lb capacity Series "700" 'Load Lifter' Motor Driven Trolley recently released by Shaw-Box.

The Series "600" motorized trolley is available with optional traversing speeds of 65 or 100 fpm.

Traverse wheel span is adjustable to fit 5 to 12 inch American Standard tapered flange I-beams, permitting relocation of the trolley on various size I-beams without reworking the trolley. Traverse wheels rotate on anti-friction ball bearings.



The driving mechanism consists of a totally enclosed direct-drive motor and sealed-in worm drive unit operating in an oil bath.

A mechanically interlocked, 24 volt, four button control station eliminates the possibility of electrical damage should both "Up" and "Down" and "Forward" and "Reverse" buttons be depressed simultaneously. The low voltage at the push-button control station is an important operator safety feature.

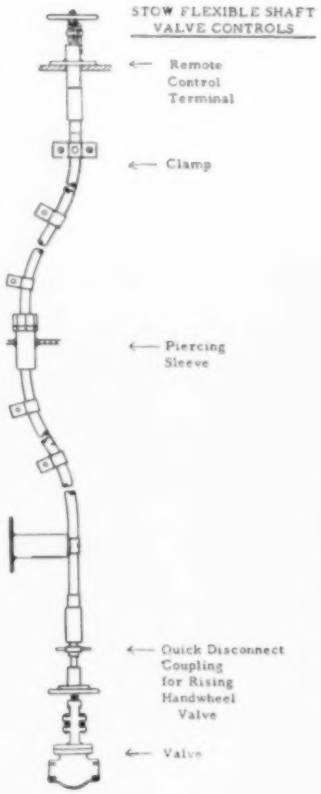
The new Series "600" motorized trolley is available as a factory installed unit in combination with any model of the Series "600" 'Load Lifter' Electric Hoist or can be purchased separately in kit form for adaptation to existing hoists.

Flexible Shafts for Remote Valve Control

H-11 **Stowe Manufacturing Co.,** 14 Shear Street, Binghamton, N. Y., has recently marketed a new line of flexible shafting and terminals for the remote control of valves. Core of the new shafts is made of multiple layers of precision wound high carbon wire. Casing is interlocked metal asbestos packed and is available in either galvanized steel or phosphor bronze.

Plain valve couplings that can be fastened to the valve handwheel spokes are available in three types: one for rising hand wheel valves; for rising stem gate valves; and for non-rising handwheel valves. Quick disconnect valve couplings are also available in these same three types. These allow couplings to be disconnected quickly if it is necessary to operate the valve right at valve handwheel. A quick disconnect valve coupling for a rising handwheel valve is illustrated.

Special clamps for fastening the flexible shaft in place are available, as well as piercing sleeves for going through floors. Two different remote control terminals are available — one for bolting in place; and the other for welding. Remote stations have indicators on them showing when valve is open or closed.

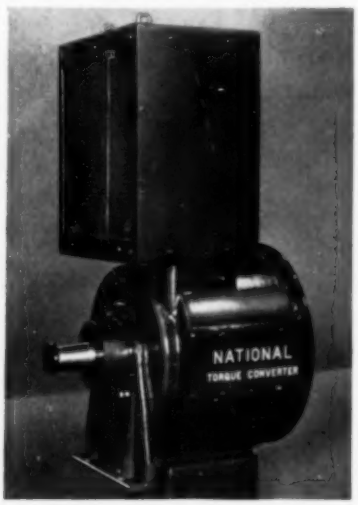


For More Free Data CIRCLE CODE NO. on the Handy Return Card — Page 17

Hydraulic Torque Converter

H-12 Single-stage torque converters are now being manufactured by the **National Supply Company,** Two Gateway Center, Pittsburgh, Pa., in a range of 100 to 1000 hp. There are six basic sizes — including 17 power capacities in closely spaced ranges for exact matching with engines and electric motors. These power ranges are provided by modification of the converter hydraulic circuit.

Especially applicable to construction, excavating, earth-handling and mining equipment, the National torque converters can be mounted in any position.



This torque converter, with cooling radiator for hydraulic fluid mounted on it, covers a power capacity range of 160 to 330 input hp at 900 rpm. Overall height is 6 ft from bottom of mounting pad under the output shaft to the top of radiator.

PVC Plug Valves

H-13 A "self-lubricated" plug valve, injection molded of polyvinyl chloride is being marketed by **Tube Turns Plastics, Inc.,** 2929 Magazine Street, Louisville 11, Ky. It is designed to handle corrosive fluids more efficiently and economically than conventional valves.

The new PVC valve will reduce replacement costs and downtime, minimize purging and eliminate the product contamination problems often experienced when certain fluids encounter metallic components of piping systems.

The new valve can be used in many cases to replace valves of special alloys, stainless steel, less suitable plastic materials, etc.

It is furnished in 1", 1½" and 2" sizes to match pipe of corresponding nominal size. These sizes may also be used with ½", ¾" and 1¼" piping by employing bushings.

Bronze Globe Valves

H-14 A new line of Bronze Globe Valves, rated at 200 lb steam pressure and 400 lb water, oil and gas pressure, has been announced by the **Lunkenheimer Co.,** Box 360, Cincinnati 14, Ohio.

The new LQ600-200 is a companion valve to the 150 lb S.P., 300 lb W.O.G. New lines offer a higher pressure throttling globe valve.

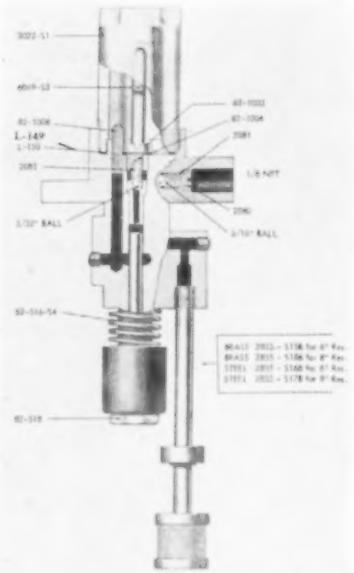
Design and construction features of both lines are identical. The bodies and bonnets of the new valves, however, are made of Lunkenheimer S-1 Bronze, said to be the highest grade valve bronze ever formulated.

Equipment, Supplies & Methods (Continued)

Vacuum Type Pumping Units for Forced Feed Lubricators

H-15 For plants experiencing difficulty with visibility and excessive maintenance on lubricator sight glasses, the new Model 82-V Vacuum Pumping Unit by **Manzel**, a Division of Houdaille Industries, Inc., 318 Babcock St., Buffalo 10, New York, is claimed to offer lower costs. Operating Principles — Rate at which oil is being pumped is indicated by the flow out of the drip tube in the sight chamber. This flow is caused by a vacuum created within the sight chamber during the suction stroke of the pump plunger. Oil from the drip tube passes to the bottom of the sight chamber and into the inlet port to the cylinder.

On discharge stroke, plunger passes the inlet port and seals it off forcing oil up to the delivery tube connected to the point to be lubricated. Any leakage of oil around the plunger due to wear, will cause the oil to flow to the point of lowest pressure which is the sight chamber. Consequently, any leakage will be indicated by a reduction in the rate of flow from the drip tube. The drip tube is connected to the suction tube and no check valves are in the suction line. As a result, the sight chamber is always under less than atmospheric pressure during operation.



Manzel's vacuum type pumping unit for the Model 82 Lubricator can be installed on existing equipment or on new lubricators. It is interchangeable with regular tubular and bullseye type sight feeds without necessity of reworking reservoir or removing it from its installed position on the machine.

Advantages — Reduced maintenance cost as sight feed liquid is not present and therefore, no clouding can occur from oil additives; Light colored oils are readily visible; Lubricants other than petroleum products can be used (check Manzel engineers on use of synthetic lubricants); Part inventory reduction is possible as the pumping unit can be used for pressures up to 6000 psig.

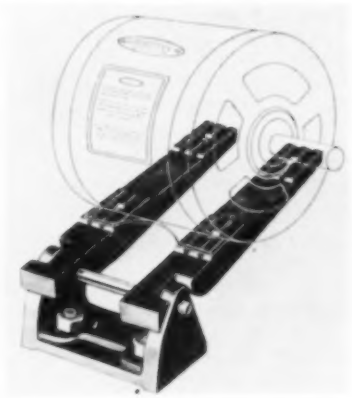
For More Free Data CIRCLE CODE NO. on the Handy Return Card — Page 17

This special 82-V Vacuum type pumping unit was especially designed for a large compressor manufacturer. Note that the lubricators are driven by one common gear motor and that the drive is taken from the back lubricator into the front lubricator by way of a geared shaft. The bracket which supports the lubricators incorporates an oil pan which catches the drippage of oil from the lubricators in case one of the men should overfill the lubricator housing.

Big advantage is that regardless of how small the setting is for the oil delivery the plunger stroke remains the same. In other words to change the volume of oil delivered only the position of the plunger in relation to inlet port is changed.

V-Belt Drive Motor

H-16 A new economical motor base for V-Belt Drives that automatically compensates for belt stress and maintains tension under all load conditions, is available from **Lovejoy Flexible Coupling Co.**, 4811 West Lake St., Chicago 44, Ill.



The new motor base (auto-tension motor base) requires no maintenance. Belt can be changed without disturbing the mounting. Available in four Nema motor frame sizes from 1/6 to 7½ hp. Is designed for use with horizontally positioned drives, and not for use on wall or ceiling mountings. Bulletin No. 1300 gives design and operational details.

Electrical Joint Compound

H-17 Alcoa No. 2 Electrical Joint Compound, which removes oxide film from aluminum or copper electrical conductors and fittings, is now packaged in a handy plastic squeeze bottle, according to the **Aluminum Company of America**, 1501 Alcoa Building, Pittsburgh 19, Pa.

The new container holds eight fluid ounces and is oval in shape to prevent rolling. The squeeze bottle is easy to carry and to use on the job. Each bottle is delivered sealed. To use, pull off the cap and nip off the tip of the spout. The

bottle is recapped like a household oil can.

Alcoa No. 2 Electrical Joint Compound removes oxide without corrosive effect on the metal itself. After application, the compound, insoluble in water, remains to seal and protect the joint and prevents reforming of the oxide.

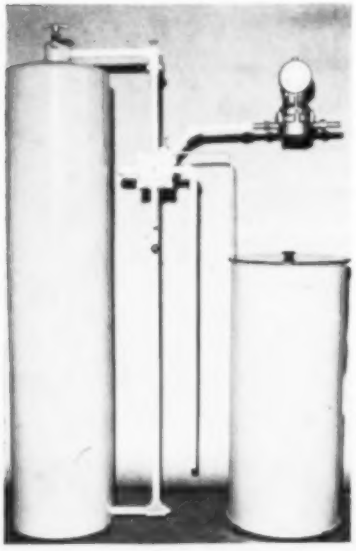
Electrical joints, when properly assembled with the compound, are in the same range of contact resistance as silver-plated joints. Excellent connections can be made with aluminum to aluminum or aluminum to copper.

Water Softener Design for Small Businesses

H-18

A special line of water softeners has been developed by **Elgin Softener Corporation**, Elgin, Ill., to meet the soft water requirements of small businesses. The famous "Double-Check" design, which gives up to 44% more water softening capacity and which prevents loss of zeolite is standard. The Elgin Multiport Valve, bell alarm meter and brine tank are also standard equipment. The special meter is wired to ring when a predetermined gallonage of water passes through. Softener operation is simple and foolproof.

Capacities range from 28,000 to 91,000 grains with synthetic gel zeolite, and from 54,000 to 180,000 grains when resinous ion exchanger is used. Softener tank sizes are 10"x54", 12"x54", 16"x54" and 18"x54" to assure selection of a unit best suited to the requirements.



Equipment, Supplies & Methods (Continued)

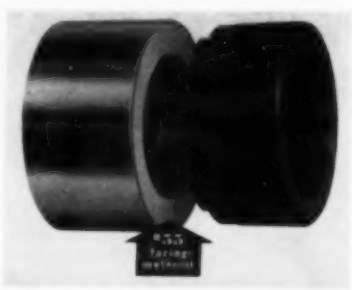
Reducing Valve Remotely Adjusted—Directly Operated

H-19 A new air loaded, diaphragm operated, pressure reducing valve (The Class GPK Valve) for steam heat and process steam applications is being marketed by the **Leslie Co.**, 261 Grant Ave., Lyndhurst, N. J. Valve has only two moving parts — metal diaphragm with full valve travel and a hardened stainless steel main valve that seats on a renewable stellited seat ring.

A simple air loader replaces the conventional loading spring, and produces a constant loading force on the diaphragm. Available in cast iron in sizes ½" to 2", with screwed end connections. Inlet pressure range is 0-250 psi, 450 F. Used with Leslie Class A air loader or Type P panel mounted loader, reduced pressure range is 0-85 psi; or, up to 249½ psi with any suitable high pressure loader. Bulletin 561 gives complete details.

Mechanical Seal Facing Material

H-20 The **Durametallic Corporation** of Kalamazoo, Michigan, has announced a new development for improved mechanical seal facing — #55 Facing Material. The material is described as providing a wear-resistant, highly refractory coating of pure oxides. It is applicable to the basic seal parts made of steel, bronze, aluminum, stainless steel, monel or other alloys.



Metal surfacing material provides superior sealing surface for mechanical seals.

The coating is claimed to be highly resistant to thermal or physical shock and corrosion, and seals with a very low coefficient of friction at the contact surfaces.

The development and processing of this new facing material was made with the cooperation of the Norton Company of Worcester, Mass. Recommended uses include refinery, chemical and general industry processing equipment. It is recommended for extremely low to extremely high temperatures, and for use in sealing all chemicals with exception of hot strong caustics and some fluorine compounds. Data sheet 469 gives details.

For More Free Data CIRCLE CODE NO. on the Handy Return Card — Page 17

News (Continued)

(*Starts on Page 10*)

Texas Instruments — New Division & Expanded Plant

The Semiconductor Products and Components divisions of rapidly expanding **Texas Instruments Incorporated**, Dallas 9, Texas, have been combined to gain advantages throughout the engineering, manufacturing and marketing operations, President J. E. Jonsson recently announced. The Semiconductor Products division is an industry leader in the manufacture of germanium and silicon transistors and diodes.

The Components division recently has expanded greatly through the addition of the product lines of the Radell Corporation and the Burlington Instrument Company to the established TI line of transformer-type components. TI-Radell resistor output has been increased by 4 times in the past year and TI-Burlington panel meters are now being produced in Dallas.

With the products of the two increasingly being marketed to the same electronics manufacturers and used in the same equipment and systems, improved customer service in sales and engineering service is provided by the consolidation. Both the divisions had sales engineers in the TI regional offices in New York, Los Angeles and Dallas, and these forces are consolidated effective immediately.

The new Semiconductor-Components division is headed by Vice President **Mark Shepherd, Jr.**, formerly in charge of the Semiconductor Products division. **J. P. Rodgers, Jr.**, formerly general manager of the Components division, has been appointed assistant vice president and marketing manager of the new division. Other new divisional appointments include: **W. E. Love**, sales planning manager; **Z. W. Pique**, sales manager; and **Leslie King**, products manager.

The divisional consolidation has altered the construction plans for the new Expressway Hill plant on the recently acquired 250-acre tract near Richardson. Plans originally called for a 150,000 sq ft plant, but consolidation of the two divisions will increase the new plant size to over 200,000 sq ft. Construction will begin this year, with completion scheduled in 1957.

News (Continued)

New Natrium, West Virginia, Titanium Chloride Plant

One of the largest titanium tetrachloride plants in the United States has been placed in operation by **Columbia-Southern Chemical Corporation** at **Natrium, West Virginia.** The new plant, situated on the Ohio River and integrated with Columbia-Southern's large chlorine producing plant, will have an annual production capacity of 35,000 tons.

Construction of the multi-million dollar facility was accomplished in less than 12 months and the initial shipments of titanium tetrachloride are ahead of the original time schedule.

Titanium tetrachloride is a clear liquid used by titanium metal producers in a chemical process to produce titanium sponge. In the production of the product, chlorine is reacted with a titanium-bearing ore in specially designed equipment.

Outdoor type construction is utilized. Equipment structure and distillation towers are as high as 110 feet. The entire plant is operated from two centrally located control rooms equipped with specially designed instruments integrated with a pictorial panel of the entire manufacturing unit.

Erven Now Sales Manager of Kennedy Valve Mfg. Co.

James R. Erven, previously Branch Manager of the New York Office has been named Vice-President and Sales Manager of the Kennedy Valve Mfg. Co.

Mr. Erven joined Kennedy Valve in 1950 as a salesman in the New Orleans office and was moved to his recent post in New York in 1952. He previously was purchasing agent of the Calmes Engineering Co., in New Orleans, builders of ships and barges.

A native of Huntington, West Virginia, Mr. Erven was educated in Florida and attended the University of Cincinnati. On leaving school he returned to Florida where he began his business career with the Tampa Shipbuilding Company in the materials section of the engineering and purchasing department.

Dow Chemical — Southeast

Frank H. Sellars, a veteran of 13 years' service as a salesman with **The Dow Chemical Company,** has been advanced to the position of supervisor of general chemicals sales for the company's Atlanta office.

Sellars will have charge of chemicals sales in a territory comprising **Georgia, South Carolina, North Carolina, Alabama** and **Florida.**

He started his career with Dow in 1943 with the magnesium sales section of the Philadelphia office and has been associated with general chemicals sales activities since 1948, the last six years with the Atlanta office.

Modern Engineering Co. St. Louis Appointment

Modern Engineering Co., St. Louis, Mo., announces the appointment of **David D. May** as Factory Sales Representative for its Meco Oxy-Acetylene Welding and Cutting Apparatus Divisions.

Mr. May will contact distributors in the **South Central States** and will make his headquarters in Memphis, Tenn.

Alsimag Sales Outlet

Wendt-Sonis Company, Hannibal, Missouri and Rogers, Arkansas has been appointed a sales outlet for **Alsimag Ceramic Tips** for metal-cutting tools. Alsimag Ceramics, manufactured by the American Lava Corporation of Chattanooga, Tennessee will be sold through approximately 180 Wendt-Sonis distributors **throughout the United States.** Both standard and special tips for metal-cutting tools will be available.

News (Continued)

More Generating Capacity for El Paso Electric Co.

To supply the increasing power demands of the **Rio Grande Valley, El Paso Electric Company** has authorized **Stone & Webster Engineering Corporation** to proceed with the construction of Unit No. 6 at the Rio Grande Station.

The unit will consist of one 44,000 kw preferred standard turbine generator which will be supplied with steam at 850 psi gage, 900 F from a gas or oil fired steam generator capable of producing 470,000 lbs of steam per hour.

Cooling water towers will be required and, in turn, will be supplied with water from deep wells. A centralized control room which will enable a minimum of operators to control the entire station output will also be a part of this program.

Pittsburgh Coke & Chemical Gulf States Area Sales

John H. Caldwell has joined **Pittsburgh Coke & Chemical Company** as a salesman in the firm's Protective Coatings Division.

Mr. Caldwell, who will handle sales of the company's cold-applied coatings in the Gulf States area, had formerly been associated with S. D. Day Company, Houston. During World War II and the Korean outbreak, he served in the U. S. Air Force. He was a flight commander in the Strategic Air Command. A member of the Houston Engineers and the NACE, Mr. Caldwell attended the Naval Academy Preparatory School and Iowa State Teachers College.

Professional Engineers—President

Robert J. Rhinehart, Pine Bluff, Arkansas, has been elected president of the **National Society of Professional Engineers.**

A Purdue University graduate in electrical engineering, Mr. Rhinehart is division superintendent for the Arkansas Power & Light Company, where he is in charge of engineering construction, operation, and maintenance in 52 towns and cities.

Pittsburgh Corning's Southeastern Repr.

Ronald R. Hanzl was recently appointed sales representative for the Pittsburgh Corning Corporation covering **Florida, Georgia** and the area of **North Carolina** west of Asheville.

Mr. Hanzl will assist distributors of Foamglas industrial and low temperature insulation, and contact architects, contractors and engineers concerning the application of this product. Mr. Hanzl will be located at 335 West 69th Street, **Jacksonville, Florida.**

News for the South & Southwest (Continued)

Valvair Corp. — Louisiana

Appointment of **Creole Engineering Company**, New Orleans, as sales representatives for Valvair products in Louisiana has been announced by Valvair Corporation, Akron, Ohio.

Creole Engineering sales are directed by **Ben Louviere.** A native of Jeanerette, Louisiana, Mr. Louviere attended Southwestern Louisiana Institute and Tulane University. He is a registered professional engineer. He has been active, for the past 10 years, in the sales and application of control equipment in the industrial, marine and oil production fields.

Located at 130 Harrison Ave., Creole Engineering will provide application engineering counsel on equipment and process control problems throughout Louisiana.

$3 Million Ruberoid Plant — Savannah, Ga.

The Ruberoid Co. will soon break ground for a felt mill on the site of Ruberoid's roofing factory at **Savannah, Ga.** The new facility will cost an estimated $3,200,000.

The dry felt to be produced at the new mill is a highly-specialized pulp product used as the base for asphalt roofings of all kinds. The output will supply Ruberoid's Savannah roofing factory, which the company acquired in 1954.

The 58,000 sq ft factory, being engineered by H. K. Ferguson and Company, will have a capacity of 80 tons of felt per day. An integrated powerhouse will be included. Operation is scheduled for early 1957.

Du Pont Laboratory Wilmington, Del.

Marking its 34th year of activity in the field of rubber, the **Du Pont Company** officially opened its new product development and technical service Elastomers Laboratory recently at **Wilmington, Del.**

The $2,800,000 installation is the latest segment of Du Pont's new technical sales service center at Chestnut Run, near Wilmington. Made necessary by the company's expanding business in synthetic rubbers and rubber chemicals, the new laboratory will enable Du Pont's Elastomers Division to broaden its sales-service work. In the past, these activities have been conducted at its Rubber Laboratory in Deepwater Point, N. J., one of the oldest industrial laboratories in the rubber chemicals field.

The new Elastomers Laboratory is probably the largest and most complete unit of its kind ever assembled. Designed primarily to provide technical service on neoprene, "Hypalon" synthetic rubber, "Hylene" organic isocyanates, and rubber chemicals, it can duplicate on a pilot-plant scale many operations in rubber manufacture.

UCC Buys Louisville, Ky., Synthetic Rubber Operation

Union Carbide and Carbon Corporation has signed a contract with the Rubber Producing Facilities Disposal Commission for the purchase, at the price of $3,125,000, of the government-owned alcohol-butadiene plant at Louisville, Kentucky.

This plant, originally built and operated by Union Carbide as a part of the World War II synthetic rubber program, is currently under lease by the Commission to Publicker Industries, Incorporated. The provisions of the sale expressly call for Carbide to maintain the existing lease which expires in April, 1958.

After the lease terminates, the plant will be operated by Carbide and Carbon Chemicals Company, a Division of Union Carbide and Carbon Corporation. Announcement of the chemicals to be produced will be issued at a later date.

Welding Advisory Service to Southern Industry

Rene D. Wasserman, President, **Eutectic Welding Alloys Corporation,** has announced Eutectic's more than 350 District Engineers are now providing a new advisory service which will establish the additional savings an industry can achieve through increased use of advanced welding procedures.

Executives in each industry are offered the results of a survey of present and possible welding operations, highlighting operations where metal joining, machinery repair and overlaying for wear resistance can be increased profitably. The service also includes demonstration guidance designed to bring weldors up to date on welding procedures for obtaining maximum machinability, color matching welds, welded repairs without dismantling and pre-heating and other "special" welding applications.

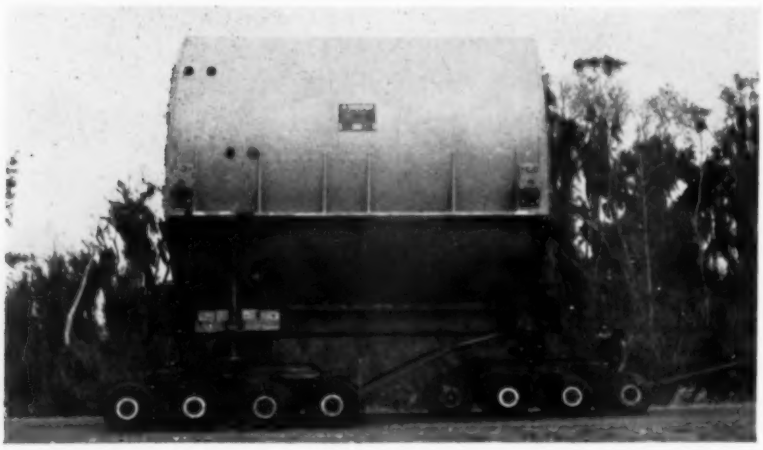
The advice given by the Eutectic District Engineer provides the Purchasing Agent, Shop Foreman or Weldor with a program for improving welding results. Welding not previously considered practicable because of the cracking, stress, warping, embrittlement and other base metal damages resulting from high heat welding alloys is shown to be possible and profitable.

The survey provides weldors with illustrated suggestions for adapting improved techniques on "difficult" base metals. It highlights helpful suggestions and procedures for doing welding on machinery and parts previously considered impossible to weld. Each application covered is summarized in terms of the additional savings which can be made.

New service is described in procedure sheet TIS-2600, available from Technical Information Service, Eutectic Welding Alloys Corporation, 40-40 172nd St., Flushing 58, New York.

Mine Safety — Birmingham

To provide improved service for customers in Alabama and Western Florida, **Mine Safety Appliances Co.** has opened a new office and warehouse at 2500 12th Avenue, North, **Birmingham 4, Alabama.** A complete line of protective appliances and replacement parts and supplies will be stocked at the warehouse to serve the area's expanding industrial needs.



Moving Day in Florida

Pneumatic oscillating dollies were used by a Florida moving firm to expedite transportation of this 62,-500-kw, 125-ton generator from a railroad siding to the outdoor site of the **Palatka** station of the **Florida Power & Light Company** about a mile and a half distant.

This super-charged cooled generator, the eighth of its kind to be installed, and a tandem compound reheat steam turbine are being supplied by **Allis-Chalmers** for this new station.

Yale & Towne — Virginia

The Yale & Towne Manufacturing Company, Yale Materials Handling Division, has announced the establishment of the state of Virginia as a separate sales and service territory in order to better serve the industrial lift truck market in that area.

The S. L. Cooper Company, materials handling specialists with offices in **Washington, D. C., Radford** and **Richmond, Virginia**, has been named Yale sales and service representative for the new territory.

The company was founded by its present president and treasurer, **Sanford Lee Cooper**, and maintains its head, corporate offices at 1700 Eye Street N.W., Washington.

Its main sales and service facilities are temporarily located in Richmond at 5402 Lakeside Ave. A move to more spacious quarters is planned for this summer to facilitate more efficient customer service handling.

The address of the Radford office is P. O. Box 532. Establishment of sales and service facilities is also planned for Roanoke.

S. L. Cooper Co. will continue to handle its complete lines of other materials handling equipment including conveyors and the like and handling accessories such as pallets, storage racks, dockboards, ramps and wheels and casters.

Salesmen working in the Virginia territory in addition to the president include **Richard Mills** and **Howard Granger**, in the Richmond office, and **Polk Threlkeld** and **Tom Brown** in the Radford office.

Holmes is Nalco Pres.

J. A. Holmes has been elected President of the **National Aluminate Corporation**, Chicago manufacturer of industrial chemicals. He succeeds H. A. Kern, a founder of the company, who continues as Chairman of Nalco's Board of Directors. Nalco's first chief chemist, Holmes has been with the company since its beginning.

Vice President **H. R. Powers** takes over as Manager of the Industrial Division of National Aluminate, the position formerly held by Holmes.

National Aluminate manufactures a wide variety of industrial chemicals including water treating chemicals, sodium aluminate, corrosion inhibitors for petroleum producers and refiners, fuel oil treatments, slime control chemicals and herbicides.

Standard Wire Cloth — Miss.

Kenneth W. Walker and **G. Harold Horne** have been transferred to the new **Brookhaven, Miss.** plant of **Standard Wire Cloth and Screen Co.**, formerly of York, Pa. Walker, who has had twenty-eight years' experience in the manufacture of insect wire screening, will be Works Manager. Horne, with the company for fifteen years, will serve as Treasurer and Office Manager.

Fairbanks, Morse Changes in Sales Organization

Fairbanks, Morse & Co. have announced a number of changes in their factory and sales organization.

L. A. Weom, who has for the past several years been Manager of Materials and Schedules at the **Beloit, Wisconsin** Works, has been appointed Manager of the Pump Sales Division with headquarters at **Kansas City, Kansas.** Mr. Weom succeeds the late Tom E. Woodruff.

J. R. Walsh, who has been Manager of the company's Kansas City, Kansas Pump Works since its opening several years ago, is succeeding Mr. L. A. Weom at the Beloit Works as Manager of Materials and Schedules.

G. R. Anderson, who has for many years been Manager of the company's Electrical Works at Freeport, Illinois, succeeds Mr Walsh as Manager of the Kansas City Works.

A. H. Hoffman, who has for a number of years been Manager of the company's Westco Pump Works in **St. Louis, Missouri,** has been appointed Manager of the Freeport Works.

Mr. V. E. Johnson has been transferred from the Sales Division to the Manufacturing Division, and has been appointed Manager of the Westco Works in St. Louis.

Floating Pumping Station for Ford at Nashville

A floating pumping station to supply process water for **Ford Motor Company's** glass plant along the Cumberland River near **Nashville, Tennessee,** now is under construction by Dravo Corporation, Pittsburgh.

The facility, designed for automatic and continuous operation regardless of river elevation, consists of a welded steel barge moored between four steel sheet pile cells. The barge is free to rise and fall with the river, which may fluctuate as much as 35 ft at this location. Plans call for installation of five pumps in a deckhouse on the barge. Four of the pumps are driven by electric motors while the fifth is diesel-powered to serve as a standby in case of electric power failure. Each of the electric pumps has a capacity of 4,000 gpm and the standby diesel pump is rated at 2,500 gpm.

The barge, 50 ft long and 29 ft wide, is fitted with rollers at each of the four corners. The rollers operate in vertical guide channels welded to the sides of the four steel cells. The two riverward cells, which extend 40 ft above low water elevation, are 16 ft in diameter and protect the pump barge from drifting material in addition to serving as supports for the guide channels.

The two cells near the shore are each 13 ft 7 in. in diameter and extend 50 ft above low water elevation. These structures support between them a 16 ft diameter steel hose reel. The reel, 10 ft 8 in. long, is grooved to receive five 12 in. diameter rubber hoses. Each hose is attached to an elbow that leads into the hollow 24 in. diameter axle of the reel. The axle thus serves as a manifold for the discharge of all hoses. A 24 in. diameter pipe connects to one end of the axle and is led to shore along a walkway. From that point, water flows to the plant through a main.

The hoses extend down from the reel some 40 ft to connect with discharge outlets on the five pumps. When the river rises, a wire rope arrangement between barge and reel causes the reel to wind up a length of hose equal to the upward movement of the barge. When the water falls, hose is paid out accordingly from the reel. Thus, the hoses are always kept straight and taut, free from kinks and bends. The design provides for 36 ft of movement between reel and barge.

Each pump on the barge has an individual suction chamber protected with a screened opening located four feet below the water level.

Warner Elec. Brake & Clutch St. Louis Representative

Duane Branaka has been named St. Louis District Representative for the **Warner Electric Brake & Clutch Company,** Beloit, Wisconsin.

Branaka will make his headquarters at 7040 Vernon Avenue, University City, Missouri and will supervise the firm's activity in **Missouri, Southern Illinois,** and **Southern Indiana.** Mr. Branaka will handle products of the firm's Industrial and Automotive Divisions.

A native of Beloit, Branaka attended the University of Michigan. After service with the Marine Corps, he became associated with the Celanese Corporation of America. He joined the Warner staff in 1955.

Ironton — Southeast

The Ironton Fire Brick Company, Ironton, Ohio has appointed **George W. Andre'** as sales representative for the states of Florida, Georgia and South Carolina. He will handle Ironton's full line of brick and special products for all types of industrial furnaces.

Automatic Names Alger to Sales Post

The appointment of **Whitney S. Alger** of Natchez, Miss. as Regional Application Engineer for the South Central States was announced by **Automatic Transportation Company.**

Alger will function as liaison between the Chicago factory and franchise representatives in **Arkansas, Louisiana, Mississippi, Oklahoma** and **Texas.** His duties will concern field coverage at the following offices: Jim McCabe Equipment Engineering Co.—New Orleans (Arkansas only); Hart Industrial Supply Company—Oklahoma City; Krisman Industrial Supply Company—Tulsa; John Gilliam Equipment Co.—Dallas; John Gilliam Equipment Co.—Houston.

Beta Corporation Expands in South and Southwest

The Beta Corporation, Box 8625, **Richmond 26, Virginia,** has recently appointed district sales representatives throughout the South and Southwest. The company manufactures vibration monitors for detecting malfunctions in expensive rotating and reciprocating equipment.

Recently appointed representatives, according to **E. V. Hardway, Jr.,** include: **Riddle and Hubbell,** Midco Bldg., Tulsa 1, Oklahoma — Oklahoma, Southern Kansas, and the Texas panhandle.

Paul E. Rogers, Shreveport, La. — Northern Louisiana.

Mooney Equipment Co., 5117 Louisa Drive, New Orleans 22, La. — Southern Louisiana and Mississippi.

Rawson and Company, 1223 Waugh Drive, Houston, Texas — South Texas.

Arthur H. Lynch Associates, Ft. Meyers, Fla. — Florida.

News (Continued)

Leslie Company—Amarillo

The S. C. Covington Co., Inc., Amarillo Building, **Amarillo, Tex.** was recently appointed a new agent for the **Leslie Co.**

The S. C. Covington Co., manufacturers' agents for power and processing equipment, also represent Texsteam Vapor Modulatic and the Arrow Industrial Mfg. Co.

Brown & Sharpe—Southeast

To give increased service to **Brown & Sharpe** industrial products distributors in Florida, Alabama, Mississippi and Georgia, **Charles L. Harrop** has been appointed Representative in those states.

Mr. Harrop is a graduate of Brown University and for the last ten years has been salesman in the Boston and Providence area.

Mr. Harrop will make his headquarters at 3387 North Druid Hills Road, Atlanta, Georgia.

Lynchburg, Va., Plant for General Electric Rectifiers

A general contract has been awarded for construction of a new plant in **Lynchburg, Va.,** to house the **General Electric Company's** Rectifier Department.

The contract was awarded to the George A. Fuller Company of New York City, associated with John P. Pettyjohn and Company of Lynchburg.

Max I. Alimansky, general manager of the department has announced that completion is scheduled for early spring of 1957.

The Rectifier Department, with present headquarters in Lynn, Mass., announced its plans for the new plant last September. Long range plans showed the need for relocating the Department to accommodate the needs of other growing departments in Lynn.

The Lynchburg plant, providing in excess of 250,000 sq ft of office, manufacturing and laboratory space, will eventually employ about 1000 persons. It will occupy a 100 acre site two miles beyond the Lynchburg city line.

FUTURE EVENTS of Engineering Interest

Sept. 14-15; 38th Annual Meeting, Public Utilities Association of the Virginias, Greenbrier Hotel, **White Sulphur Springs, W. Va.** Estimated attendance 400.

Sept. 23-26; Petroleum-Mechanical Engineering Conference, A.S.M.E., Conrad Hilton Hotel, **Dallas, Texas;** C. E. Davies, Secty., A.S.M.E., 29 West Thirty-Ninth St., New York 18, N. Y.

Sept. 27-29; 33rd Annual Meeting, **National Management Association,** Sheraton-Jefferson Hotel, **St. Louis, Mo.** National Management Assoc., 321 West First St., Dayton 2, Ohio.

Oct. 1-3; 12th Annual Meeting, National Electronics Conference, Hotel Sherman, **Chicago, Ill.** Estimated attendance, 10,000, for the nation's leading forum on electronic research, development and application. Victor J. Danilov, Illinois Institute of Technology, Chicago 16, Ill.

Oct. 22-25; Society of Industrial Packaging and Materials Handling Engineers technical short course (Oct. 22-25), 11th Annual National Protective Packaging and Materials Handling Exposition (Oct. 23-25), and National Protective Packaging and Materials Handling Competition, Kiel Auditorium, **St. Louis, Mo.:** G. Cornwall Spencer, 30 N. La Salle St., Chicago 2, Ill.

Oct. 22-26; 44th National Safety Congress and Exposition, Chicago, Ill. Sessions on industrial safety scheduled for Conrad Hilton, Congress, Morrison and La Salle hotels; traffic safety sessions, Congress; commercial vehicle and transit safety sessions, La Salle; farm and school sessions, Morrison; and home safety sessions, Conrad Hilton. R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Oct. 23-26; Symposia are planned on utilities industry, high temperatures, transportation industry, cathodic protection, pipe lines and oil and gas well equipment; **National Association of Corrosion Engineers,** South Central Region, Gunter Hotel, **San Antonio, Texas;** A. B. Campbell, Executive Secretary, National Assoc. of Corrosion Engineers, 1061 M & M Building, Houston 2, Texas.

Nov. 26-30; Third International Automation Exposition, Trade Show Building, 500 Eighth Ave., **New York.** Clinics on: electronic computers, process automation, machine tool automation, office automation, automatic materials handling (conveyors), servomechanisms, electromechanical components and electronic components. Harrison Gilmer, 908 Keystone Building, Pittsburgh 22, Pa.

Nov. 26-30, 1956; 22nd National Exposition of Power & Mechanical Engineering in **New York City's** new **Coliseum.** Covers power production, its use, new techniques, economies, and atomic energy; under auspices of ASME; Management—E. K. Stevens, Pres., International Exposition Co., 480 Lexington Ave., New York 17, N. Y.

J. J. Finnigan Co. Engineers Highlight Design-Production Techniques—Atlanta

Engineers of Atlanta's J. J. Finnigan Co.—**S. P. DeKoning, James Bell,** President **William J. McAlpin** (center), **Peck Lord,** and Plant Superintendent **W. C. Holland**—participated in a recent educational meeting of the Georgia Chapter, American Society for Metals. Mr. McAlpin outlined the growth of the company and Mr. DeKoning and Mr. Bell spoke on the design and construction of unfired pressure vessels and miscellaneous plate fabrication, highlighting techniques and methods employed in the company's modern fabricating plant at 722 Marietta St., N.W., Atlanta, Georgia.

Since 1888 the J. J. Finnigan Co. has been supplying Southern industry with steel and alloy fabrications of many types—tanks, plate work, piping, breeching, smokestacks, water heaters, boilers, etc. The speakers at the A.S.M. Atlanta meeting emphasized how the production of these and other units meet rigid A.S.M.E. specifications. In addition to the Atlanta headquarters, the J. J. Finnigan Company maintains sales offices in Houston, Dallas, Jacksonville, Little Rock, Washington, New Orleans, Charlotte, and New York City.

Circle Clamp Names Southern Distributors

Several distributors have been appointed by the **Circle Clamp Corporation,** New York City, a newly established manufacturer in this country for general purpose hose clamps.

Briggs Rubber Products Company, of Wilmington, Del., Philadelphia and Baltimore — covering **Maryland, District of Columbia, Delaware,** lower New Jersey and southeastern Pennsylvania.

Edwards Engineering Corporation, of New Orleans — covering **Louisiana** and **Mississippi.**

J. A. Postell, of Atlanta, Ga. — covering **North Carolina, South Carolina, Tennessee, Georgia, Florida** and **Alabama.**

Houston Gasket & Packing Co., of Houston, Tex. — covering the **lower half of Texas** excluding Dallas and Fort Worth.

Hydro-Air Engineering, of St. Louis and Kansas City, Mo., and Des Moines, Iowa — covering **Missouri,** eastern Nebraska, Iowa and southern Illinois.

Shields Rubber Corporation, of **Pittsburgh** — covering eastern Ohio, **West Virginia** and Pennsylvania west of Harrisburg.

Avisco — Front Royal, Va.

James Bennett, chief plant engineer at American Viscose Corporation's Front Royal rayon plant, has been appointed engineering consultant to the plant manager. In making the announcement, A. G. McVay, plant manager, said that Mr. Bennett will be succeeded by **Maurice P. Gooden** as chief plant engineer.

Classified Advertisements

Classified rates are net, payable in advance, each month. Rates are based on column inch, with three columns per page, 10 inches per column, column width 2¼ inches — a total of 30 column inches per page.

CLASSIFIED RATES
$8.00 per column inch
$16 per column inch displayed

Rates quoted on special types of repeated advertisements.

Special "Position Wanted" Advertisements submitted by individuals seeking employment, 10 cents per word per insertion, payment with order, minimum charge $3.00. When used, Box Number address, c/o SOUTHERN POWER & INDUSTRY, 806 Peachtree Street, N.E., Atlanta 5, Georgia, count as eight words.

ELECTRIC UTILITY PERSONNEL

- CHIEF POWER SYSTEM ENGINEER
- CHIEF TRANSMISSION & DISTRIBUTION ENGINEER
- POWER PLANT SHIFT SUPERVISORS
- CONTROL ROOM OPERATORS

. . . for a Utility in Central America, consisting of a new high pressure 30,000 KW Steam Power Plant, an existing 10,000 KW Diesel Power Plant, 170 miles Transmission Lines, and Distribution Systems in one large city and 15 outlying towns. Minimum 5 years' experience. Good working conditions with initial contract for 2 years—with option for renewal. Working knowledge of Spanish desirable, but not necessary. All applications will be acknowledged. In reply, state age, experience, education, salary expected, and availability date.

Box 248 Southern Power & Industry
806 Peachtree Street N. E.
Atlanta 8, Georgia

SAVE $$$$

By having your Safety-Relief-Gate-Globe-Check Valves rebuilt or serviced by us. Staffed with factory trained personnel we are able to give a new valve guarantee, cut down on time and freight charges. Work performed either in your plant or ours. Complete insurance carried. For particulars write:

SOUTHERN VALVE CORPORATION
2937 WEST BEAVER STREET
JACKSONVILLE 5, FLORIDA

AUTHORIZED REPAIR, MAINTENANCE & SALES AGENCY FOR SAFETY & RELIEF VALVES

CASH
FOR USED TRANSFORMERS

40 Years Dependable Service
Convert your used transformers to cash! Send us a description of them TODAY. *Transformers and Coils built to your specifications.* Send blueprint, for prompt quotation.

TRANSFORMERS BOUGHT, SOLD and REPAIRED

THE ELECTRIC SERVICE CO.
5322 Hetzel St., Cincinnati 27, Ohio

ELLIOTT GENERATOR— FOR SALE!

Practically new 200 KW steam turbine generator, used as standby machine in food processing plant in Memphis, Tennessee for last ten years, cost new then more than $13,000; can be converted from DC to AC for $5,135. Today's price new approximately $18,000. Offer subject to prior sale, for immediate delivery f.o.b. Memphis, complete, at only $7,500. Might take less for "quick sale." Dealers invited. Details by writing Box 249, care SOUTHERN POWER & INDUSTRY, 806 Peachtree St., N.E., Atlanta 8, Ga.

INDUSTRIAL OIL BURNER SALES ENGINEER—17 Counties, N.E. Florida territory selling Ray burners, boilers, etc. Excellent opportunity. Details will follow. State qualifications. Dealer est. 1905. E. G. GOLDER CO., P. O. Box 4487, Jacksonville 1, Florida.

BOILERS

New and used, bought, sold, traded and repaired. Call or wire collect.

INDUSTRIAL EQUIPMENT CO.
Orlando, Florida

INDUSTRIAL OIL BURNER MECHANIC—Servicing Ray and all makes hor. Rot. and steam generators, electronic controls. Perm. position. State qualifications and requirements. E. G. GOLDER CO., P. O. Box 4487, Jacksonville 1, Florida.

SERVICE & INST. MANAGER—Largest industrial and domestic fuel oil and service in area. Proposition open, state qualifications, references, availability. E. G. GOLDER CO., P. O. Box 4487, Jacksonville 1, Florida.

RENEW YOUR SUBSCRIPTION TO SOUTHERN POWER AND INDUSTRY

Index of Advertisers

This Advertisers' Index is published as a convenience, and not as a part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

Manufacturers' Agents

REPRESENTING OUR ADVERTISERS

Listing of Advertisers and Manufacturers' Agents are published as a convenience to readers and not as a part of the advertising contract. Care will be taken to list and index correctly. However, no allowance can be made for errors, or for failure to insert. We will appreciate your calling to our attention any corrections or omissions promptly. Only manufacturers' agents are listed below.

ALABAMA

Birmingham

S. C. Bratton Sales Engineers
Sarco Co., Inc. 13

Crandall Eng. Co.
Philadelphia Gear Works 84

Dixie Engineering
Dollinger Corp. 59

W. C. Heckeroth
Magnetrol, Inc. 102

Fred S. Middleton Co.
Borden Metal Products
Co. 38

Harry G. Mouat
Clarage Fan Co. 1

G. R. Mueller Co.
Philadelphia Gear Works 86

Newell Equipment Co.
American Monorail Co. . 34

Palmer & Lawrence
Orr & Sembower, Inc. .. 29

Hugo A. Puls
Pacific Pumps, Inc. 11

Southeastern Products Co.
Armstrong Machine
Works 7

W. E. Veenschoten
Copes-Vulcan Div. 20

Mobile

S. C. Bratton
Sarco Co., Inc. 13

Montgomery

Building Products, Inc.
Borden Metal Products .. 38

ARKANSAS

Little Rock

J. L. Brown Sales Co.
Sarco Company, Inc. 13

A. G. Crothers
J. J. Finnigan Co. 97

Lynton L. Scharff
Manzel 25

Pine Bluff

M. L. Cooper
Subox, Inc. 79

DISTRICT OF COLUMBIA

Washington

Robert M. Austin
Cochrane
Corp. .....Fourth Cover

T. W. McGuire Co.
Copes-Vulcan Div. 20
Prat-Daniel Corp. 93

Meleny Engineering Co.
Copes-Vulcan Div. 20
Magnetrol, Inc. 102
Reliance Gauge Column
Co. 83

Glegg Thomas
Clarage Fan Co. 1

FLORIDA

Jacksonville

G. R. Copeland
Armco Drainage & Metal
Products Co. 82

T. C. Heyward
Combustion Engineering,
Inc. 66

Miami

Florida Fuel Oil, Inc.
Orr & Sembower, Inc. .. 29

Ireland Equipment Co.
American Monorail Co... 34

Neptune Beach

W. F. Bloom
Fiske Bros. Refining Co. 88

Orlando

McCarthy & Co.
Jefferson Union Co. 86

Tampa

H. C. (Pat) Flanagan
Copes-Vulcan Div. 20

John D. Homan
Boiler Tube Co. of
America 90

O. H. Howell Mfrs. Agent,
Inc.
Sarco Co., Inc. 13

W. E. Minich & Associates
Philadelphia Gear Works 86

West Palm Beach

J. P. Carroll
Goulds Pumps, Inc. 85

GEORGIA

Atlanta

Abbey Steam Specialty Co.
Armstrong Machine
Works 7

H. Kenneth Adams, Jr.
George D. Roper Corp... 87

Applied Engineering Co.
Prat-Daniel Corp. 93

Boiler Equipment Service Co.
Cochrane
Corp. .....Fourth Cover

W. R. Calverley
Subox, Inc. 79

Collins Bearings Co.
Fiske Bros. Refining Co. 88

J. R. Kindig Co.
Geo. D. Roper Corp. 87

McBurney Stoker &
Equipment Co.
Copes-Vulcan Div. 20

Paul H. Nichols & Co.
Pittsburgh Piping &
Equip. Co. 73

Spotswood Parker Company
Reliance Gauge Column
Co. 83
Orr & Sembower, Inc. .. 29
Prat-Daniel Corp. 93

C. T. Pottinger & Co.
Clarage Fan Co. 1

Evans L. Shuff & Assoc.
Blaw-Knox Equip. Div... 77
Detroit Stoker Co. 21
Buell Engineering 31
Pacific Pumps, Inc. 11

W. D. Taulman Associates
Chapman Valve Mfg. Co. 36
Foster Wheeler Corp. ... 55

John F. Templeton Co.
Sarco Company, Inc. 13

E. A. Thornwell, Inc.
Borden Metal Products
Co. 38

Will Corporation of Georgia
Dollinger Corp. 59

Decatur

A. J. Kroog Co.
Philadelphia Gear Works 86

KANSAS

Wichita

Economy Equipment Co.
Reliance Gauge Column
Co. 83

KENTUCKY

Louisville

Cardinal Conveyor Co., Inc.
American Monorail Co. . 34

The Abbott Company
Magnetrol, Inc. 102

George Parnson
Ernst Water Column &
Gage Co. .....94 & 96

Steel Fabricators, Inc.
Borden Metal Products . 38

LOUISIANA

New Orleans

Felix L. Alcus
Clarage Fan Co. 1

Allied Sales & Service, Inc.
Durametallic Corp. 92

Brindell & Cooper
Sarco Co., Inc. 13

John H. Carter Co.
Reliance Gauge Column
Co. 83
Republic Flow Meters Co. 35

Coastal Engineering Corp.
Mason-Neilan Div. ..60 & 61

Creole Engineering Co.
Ernst Water Column &
Gage Co. .....94 & 96

Joseph V. D'Amico, Jr.
Armstrong Machine
Works 7

John V. Dugan
Pittsburgh Piping &
Equipment 73

Eggelhof Engineers
Magnetrol, Inc. 102

Equitable Equipment Co., Inc.
Ingersoll-Rand Co. 89

D. B. Fried
Clarage Fan Co. 1

Allan J. Harris Company
Cochrane
Corp. .....Fourth Cover

Arthur C. Hays
Blaw-Knox Equip. Div... 77
Prat-Daniel Corp. 93

Louisiana Steam Equipment
Co.
Armstrong Machine
Works 7

Mechanical Equipment Co.
Goulds Pumps Inc. 85

Sintes Sales Engineering Co.
American Monorail Co. . 34

Shreveport

John H. Carter Co.
Reliance Gauge Column
Co. 83
Republic Flow Meters Co. 35

L. A. DeJean
Fiske Bros. Refining Co. 88

Eggelhof Engineers
Magnetrol, Inc. 102

The Williamson Sales Co.
Subox, Inc. 79

R. F. Zimmerman Co.
Clarage Fan Co. 1
Sarco Co., Inc. 13

MARYLAND

Baltimore

H. B. Brown Co.
American Monorail Co... 34

Hersche Packing Co.
U. S. Gasket—Belmont
Packing 32

William A. Milby Co., Inc.
Armstrong Machine
Works 7
Cochrane
Corp. .....Fourth Cover
Goulds Pumps Inc. 85

J. Frank Ottinger
Philadelphia Gear Works 86

J. E. Perkins Corp.
Sarco Co. 13

Power & Combustion, Inc.
Orr & Sembower, Inc. .. 29

Taze & Hewitt
Clarage Fan Co. 1

Wm. F. Goddard & Son
Prat-Daniel Corp. 93

MISSOURI

Kansas City

J. W. Donahower & Assoc.
American Monorail Co... 34

Economy Equipment Company
Cochrane
Corp. .....Fourth Cover
Reliance Gauge Column
Co. 83
Magnetrol, Inc. 102

F. W. Hay & Co.
Prat-Daniel Co. 93

Manufacturers' Agents

Representing Our Advertisers (Continued)

Heaven Engineering Company
Orr & Sembower, Inc. .. 29
Clarage Fan Co. 1

The Hesler Co.
Copes-Vulcan Div. 20

Hughes Machinery Co.
Armstrong Machine Works 7

Wm. A. Knapp Company
Geo. D. Roper Corp. 87

Meesplay Machinery Co.
Cochrane Corp. .....Fourth Cover

Midwestern Power Equipment Co.
Philadelphia Gear Works 86

Patterson & Co.
Prat-Daniel Corp. 93

Smith Steam Specialty Co.
Sarco Co., Inc. 13

Kirkwood

E. H. Bigden
Geo. D. Roper Corp. 87

St. Louis

Amman-MacGregor Co., Inc.
Cochrane Corp. .....Fourth Cover

B & B Combustion Equipment Co.
Buell Engineering Co. .. 31
Detroit Stoker Co. 21

Bates Sales Co.
Philadelphia Gear Works 86

Central Pump & Equipment Co.
Goulds Pumps Inc. 85

Economy Equipment Co.
Reliance Gauge & Column Co. 83
Copes-Vulcan Div. 20
Magnetrol, Inc. 102

Peter S. Grandcolas
Borden Metal Products.. 38

A. K. Howell Co.
Goulds Pumps Inc. 85

Howell Engineering Equipment Co.
Copes-Vulcan Div. 20
Goulds Pumps Inc. 85

Lane Machinery Co.
Cochrane Corp. .....Fourth Cover

Midvale Material Handling Equipment Co.
American Monorail Co... 34

O'Brien Equipment Company
Armstrong Machine Works 7
Mason-Neilan Div. ..60 &61

The O'Fallon Co.
Jefferson Union Co. 86

George W. Pieksen
Sarco Co., Inc. 13

Gid Porter Company
Prat-Daniel Corp. 93

Rhodes Equipment Co.
Clarage Fan Co. 1
Blaw-Knox Equip. Div... 77

The Hawkins-Hamilton Co.
Terry Steam Turbine Co. 28
Copes-Vulcan Div.,
Blaw-Knox 20

T. C. Heyward
Combustion Engineering, Inc. 66
Prat-Daniel Corp. 93

R. H. Johnson Co.
Sarco Co., Inc. 13

A. J. Kroog Co.
Philadelphia Gear Works 84

Robert E. Mason & Co.
Goulds Pumps Inc. 85
Clarage Fan Co. 1

Mec-Tric Control Company
The Reliance Gauge Column Co. 83
Magnetrol, Inc. 102

C. R. Trimble Co., Inc.
Dollinger Corp. 59

J. Fred Welch
Fiske Bros. Refining Co. 88

Greensboro

Allan T. Shepherd Co.
Armstrong Machine Works 7

OHIO

Cincinnati

The Abbott Co.
Magnetrol, Inc. 102

George H. Armstrong
Cochrane Corp. .....Fourth Cover

A. A. Betts Co.
Blaw-Knox Equip. Div... 77

Chapman-Engineering Sales Co.
Cochrane Corp. .....Fourth Cover
Reliance Gauge Column Co. 83

Cincinnati Steel Products Co.
Borden Metal Products Co. 38

Consolidated Engineering Sales Co.
Sarco Co., Inc. 13

John H. Doerner
Philadelphia Gear Works 86

F. W. Jenike Co.
Prat-Daniel Corp. 93

Lathrop-Trotter Co.
Terry Steam Turbine Co. 28

George T. Oberklein & Assoc.
Illinois Water Treatment Co. 84

Harry T. Porter & Co.
Chapman Valve Co. 36

H. P. Thompson Co.
Cochrane Corp. .....Fourth Cover
Copes-Vulcan Div. 20

E. C. Werner
Geo. D. Roper 87

Wikel & Cornelius, Inc.
Goulds Pumps Inc. 85

OKLAHOMA

Oklahoma City

The Ward R. McGavren Co.
Armstrong Machine Works 7

J. M. O'Connor Co.
Orr & Sembower, Inc. .. 29

Tulsa

Edward C. Bromiley
Manzel Div. 25

Fred Colbert
Dollinger Corp. 59

The Conduit Company
Mason-Neilan Div. ..60 & 61
Ernst Water Column & Gauge Co. .....94 & 96

W. D. Emery Co.
Durametallic 92

W. C. Jackson
Manzel Div. 25

The Laney Co.
Copes-Vulcan Div. 20

R. E. Martin
Sarco Co. 13

L. D. McKay & Co., Inc.
Reliance Gauge Column Co. 83

Moorelane Co.
Wm. Powell Co. 23
Sarco Co., Inc. 13

The Refinery Supply Co.
Cochrane Corp. .....Fourth Cover

Riddle & Hubbell
Terry Steam Turbine Co. 28
Philadelphia Gear Works 86

Snyder Company, Inc.
Republic Flow Meters Co. 35

Thilenius Equipment Co.
Dollinger Corp. 59

Vinson Supply Co.
Copes-Vulcan Div. 20

Westcott & Greis, Inc.
Reliance Gauge Column Co. 83

SOUTH CAROLINA

Charleston

Garvin Industries, Inc.
Orr & Sembower, Inc. .. 29

Greenville

Allan T. Shepherd Co.
Armstrong Machine Works 7

Roy A. Stipp
Dollinger Corp. 59

Orangeburg

Applied Engineering Co., Inc.
Prat-Daniel 93

TENNESSEE

Chattanooga

Allan G. Brown
Illinois Water Treatment Co. 84

General Industries Co.
Jefferson Union Co. 86

McKinney Supply Co.
American Monorail Co... 34

Manufacturers Distributors Co.
Bonney Forge & Tool Works 64
Eutectic Welding 26

Knoxville

Automatic Heating & Equip. Co.
Orr & Sembower, Inc. .. 29

Dickey Engineering Co.
Cochrane Corp. .....Fourth Cover
Copes Vulcan Div. 20

Leinart Engineering Co.
Cochrane Corp. .....Fourth Cover
Armstrong Machine Works 7

Loughran Equipment Co.
Dollinger Corp. 59

G. Walter Sutton & Son
Sarco Co. 13

Z. L. Witt
Clarage Fan Co. 1

Memphis

C. W. Dean & Associates
Goulds Pumps, Inc. 85

Flinn Engineering Co.
Sarco Co., Inc. 13

C. J. Gaskell Co., Inc.
Copes-Vulcan Div. 20
Magnetrol, Inc. 102

Hoshall Machinery Co.
Goulds Pumps Inc. 85

Hurston-Conaway, Inc.
Clarage Fan Co. 1

Power Equipment Co.
Armstrong Machine Works 7

Robert James Rier
Geo. D. Roper Corp. 87

Eugene D. Wilson
American Monorail Co. . 34

Nashville

Allen-Shuff Corp.
Blaw-Knox Equip. Div. . 77
Buell Engineering 31
Detroit Stoker Co. 21

Andersons, Inc.
American Monorail Co. . 34

William C. Armistead Co.
Clarage Fan 1
Dollinger Corp. 59

Ray E. Gardner
Sarco Co., Inc. 13

W. J. LaPierre
Borden Metal Products Co. 38

Power Specialty Co.
Ernst Water Column & Gage Co. .....94 & 96

TEXAS

Amarillo

General Sales, Inc.
Durametallic Corp. 92

Moorelane Company
Wm. Powell Co. 23
Sarco Co., Inc. 13

Bellaire

F. T. Bobbitt Co.
Prat-Daniel Corp. 93

Dallas

Allan Engineering Co.
Clarage Fan Co. 1

Geo. E. Allan & Co.
Armstrong Machine Works 7

J. P. Ashcraft Co.
Dollinger Corp. 59
Orr & Sembower 29

Stanley D. Bowles Co.
George D. Roper Co. 87

Joe W. Brown
Jefferson Union Co. 86

Cowles & Co.
Republic Flow Meters Co. 35
Terry Steam Turbine Co. 28

Eggelhof Engineers
Magnetrol, Inc. 102

B. T. Erickson
Fiske Bros. Refining Co. 88

Expansion Briefs — South & Southwest

Expanding Markets for W-K-M's Multi-Million Texas Operation

Now in full production, **W-K-M Manufacturing Company's** new 12 acre valve and fittings plant at Missouri City, Texas, near Houston, permits three distinct product lines to function under one roof. Highlight report on the huge facility is featured in this issue.

The subsidiary of **ACF Industries, Inc.,** is a combination of **W-K-M Manufacturing Company, Inc.,** Houston, a manufacturer of gate valves for oil production and pipe line installations; **The Key Company,** East St. Louis, manufacturer of return bends and welding fittings for refineries and chemical processing plants; and the **ACF Valve Division,** Detroit, producer of lubricated plug valves for all industrial uses.

Engineering, production and sales activities of the three concerns were recently concentrated in the new modern facilities near Houston, Texas.

J. S. Downs, President of W-K-M Manufacturing Company heads up the expanded organization.

J. S. Downs

H. Ben Young

H. Ben Young is Director of Engineering for the Company. Mr. Young, formerly Chief Engineer of Mission Manufacturing Company, heads the engineering and research activities of all three product lines.

William A. Gormley is Manager of Sales, Lubricated Plug Valve Div.; **B. J. Grose,** Vice President, Marketing; **Robert O. Wynn,** Production Manager; **Ross Hunt,** Advertising Manager; **O. Bliss Williams,** Director of Industrial and Public Relations; and **Tony Mann** is Plant Superintendent.

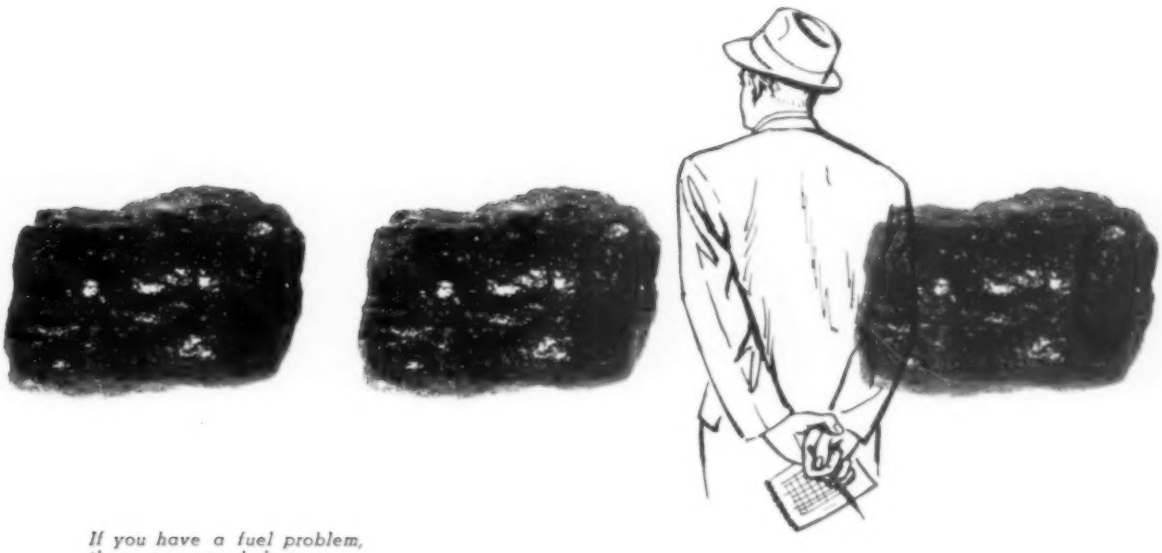
An expanding research and development program will serve the following basic markets — oil and gas, chemical and petrochemical, food processing, power, water works and sewage disposal plants.

New Mississippi Plant for Standard Wire Cloth & Screen

Standard Wire Cloth and Screen Company, formerly of York, Pa., has moved into their new, modern plant at **Brookhaven, Mississippi.**

The plant will manufacture insect wire screening from all metals, including aluminum, bronze, electrogalvanized steel, Monel, stainless steel and others. In addition, aluminum frameless tension screens, made by Keystone Wire Cloth Co., Hanover, Pa., an affiliate company, will be stocked at all times.

Hard to pick the right Coal?



If you have a fuel problem, these men can help you:

J. B. GILTNER, District Manager
Coal Bureau
833 Chamber of Commerce Bldg.
Telephone LIberty 2-2229
Boston 10, Massachusetts

L. J. WHITLOCK, JR., District Manager
Coal Bureau
Room 604, 208 S. La Salle St. Bldg.
Telephone RAndolph 6-4634
Chicago 4, Illinois

D. H. WILLIAMS, District Manager
Coal Bureau
908 Dixie Terminal Building
Telephone DUnbar 1-1325
Cincinnati 2, Ohio

G. O. ELLSTROM, District Manager
Coal Bureau
1819 Union Commerce Building
Telephone MAin 1-7960
Cleveland 14, Ohio

F. L. DONAHER, District Manager
Coal Bureau
1907 Book Building
Telephone WOodward
1-2340 or 1-2341
Detroit 26, Michigan

R. L. HAWKINS, District Manager
Coal Bureau
Telephone 4-1451, Extension 423
Roanoke, Virginia

R. L. JOHNSON
Assistant District Manager
Coal Bureau
2059 Railway Exchange Building
Telephone MAin 1-1180
St. Louis 3, Missouri

M. T. DELABAR, District Manager
Coal Bureau
1105 Reynolds Building
Telephone 7116
Winston-Salem 1, North Carolina

Here's a tip...

There are many kinds of coal, and choosing the best kind for your needs isn't always easy. But our fuel specialists can help you. They're at your service from eight key cities of the U. S. There's no obligation.

And when you buy coal, don't settle for anything but the best. That's Fuel Satisfaction — the superior all-purpose Bituminous Coal mined along the N&W. It always delivers a full dollar's worth of satisfaction for every dollar spent, whether you use it for heat, power or special purpose.

Norfolk and Western
RAILWAY

CARRIER OF FUEL SATISFACTION

First in water conditioning

Cochrane HOT PROCESS

AT U.S. STEEL'S CLAIRTON PLANT

Designed to soften and deaerate 100,000 GPH of boiler feed water, this Cochrane unit at U.S. Steel's plant is a sludge blanket design deaerating type Hot Process Softener with a 38' dia. spherical top sedimentation tank. The Softener is followed by six 11' dia. anthracite filters equipped with surface washers.

Cochrane pioneered the versatile Hot Process Softener. Its flexibility and efficiency are unquestioned and it provides a water softening process that can handle both turbid surface supplies and clear well waters.

Cochrane Hot Process Softeners can be used to reduce silica economically and effectively. It is also possible to provide integral deaeration elements for condensate and treated makeup where required.

For medium and high pressure boilers, Hot Process can be followed by Hot Zeolite to provide zero hardness and lower solids as well as to reduce CO_2 in the steam.

If you now have a Hot Process Softener, Cochrane Hot Zeolite may be readily added, assuring higher effluent quality at lower treating cost.

Cochrane, first in water conditioning for over half a century, continues to lead the way in Hot Process and Hot Zeolite. Call our engineers for the answer to your problem. Ask for Publication 4801.

Cochrane

CORPORATION

3110 N. 17TH STREET, PHILADELPHIA 32, PENNA.

NEW YORK • PHILADELPHIA • CHICAGO

Cochrane Water Conditioning Ltd., Toronto 4; Montreal 1, Canada

Representatives in 30 principal cities in U.S.; Paris, France; La Spezia, Italy; Mexico City, Mexico; Havana, Cuba; Caracas, Venezuela; San Juan, Puerto Rico; Honolulu, Hawaii; Manila, Philippine Islands.

Pottstown Metal Prods. Div.—Custom built carbon steel and alloy products.

Demineralizers • Zeolite Softeners • Hot Process Softeners • Hot Lime Zeolite Softeners • Dealkalizers • Reactors • Deaerators • Pressure Filters
Continuous Blowoff Systems • Condensate Return Systems • Steam Specialties

Ad. 2.01